The Iron Age

A Review of the Hardware and Metal Trades.

Published every Thursday Morning by DAVID WILLIAMS, No. 10 Warren Street, New York.

Vol. XII: No. 19. *New York, Thursday, November 6, 1873.* *Four Dollars a Year. Single Copies, Ten Cents.*

Hydraulic Elevators.

The remarkable display of power elevators made at the last Cincinnati Industrial Exposition, shows that the Cincinnati manufacturers are alive to the importance of convenient and economical means of getting up stairs, as many as six being on exhibition. Two of these in Grand Central Hall, which were in constant use, conveying visitors between the gallery and the main floor, while illustrating no new principle, were of a form until quite recently unknown in this country, the first one having been erected in 1870, by Messrs. Lane & Bodley, of that city, for the cotton factory of Messrs. Gould & Pearce. The principle is that of hydraulic pressure. Their introduction is directly due to Mr. Pearce, of the above firm, who had been recently traveling in Europe, where he found them extensively used, and from whence he obtained the idea of applying hydraulic pressure, obtained directly from the water pipes of the city, in cases where power for no other purpose is desired. The most simple and the best form of this machine is what is termed direct action, in which case a cylinder or pipe is sunk into the earth to a depth equal to that of the elevation desired, *e. g.*, if the upper floor of the building is sixty feet high, the cylinder is sunk sixty feet below the first or cellar floor. At the top of the cylinder is a small pipe for receiving and discharging the water, and a stuffing box, in which works a piston of the same length as the cylinder, the diameter of which is determined by the pressure of water and the weight to be raised; the ordinary platform, of whatever shape and style desired, is placed on the top of this piston. The pressure on the end of the piston is never less than that in the street main or rather at the cellar floor, where the water is admitted. The platform can therefore be raised to any hight, depending only upon the depth to which the piston is sunk into the earth. It will be seen the water can be brought from the street main, and discharged into the sewer after being used, at a sufficient depth to avoid all danger from freezing and other accidents. The action is briefly as follows: To raise the platform, the valve is opened by means of a rope or chain running the whole length of the elevator, when the pressure of the water in the street main (whatever that may be) is brought directly upon the lower end of the piston, forcing it and the platform upward. By closing the valve, it can be stopped at any point desired; or, if allowed to continue to the top, the valve closes automatically. To descend, the escape valve is opened, when the water flows into the sewer, and the weight of the piston and platform carries them down, the velocity of the descent, as well as the ascent, depending upon the opening of the valve, and the rapidity with which the water is supplied. The great safety of the machine lies in the fact that no water can escape from the cylinder except when forced out by the pressure exerted by the piston and platform, while, should any obstruction stop the descent of the platform, the flow of water must necessarily cease at once, and the sudden fall of the platform is rendered impossible.

The success of the elevator built by Messrs. Lane & Bodley in 1870 was so complete, both as regards safety and economy, that other orders soon followed, and at present they are manufactured by at least three firms, while not less than one hundred of these elevators are in use in the lower part of Cincinnati. A number have also been erected at Indianapolis, Louisville, St. Louis, and other points, and we have heard of recent efforts being made to introduce them into Eastern cities. They are everywhere encouraged by boards of water works, as water can be furnished at a handsome profit much below the cost of running an engine.

Another form of building these elevators is what is known as the compound, or Armstrong (English) pattern, one of which was on exhibition, in which the platform is elevated by a rope, and the other usual attachments of a steam-power elevator, the motive power, however, being water in place of steam, which is admitted into a horizontal cylinder. In this case the water is repumped, under pressure, into what is termed an accumulator, by which the power is stored up to be used as desired. It is simply a very heavy weight placed on the top of a piston, under which the water is forced, the weight then acting upon the elevator when wanted. This form can also be used when great elevation is desired, and the pressure is not sufficient to operate one of direct action. It is being introduced at some of the Western furnaces for elevating ore, fuel, etc., as we learn, with success. Indeed, both for safety and economy, where a supply of water can be obtained, and no other power is desired, the hydraulic elevator will doubtless come largely into use.

The Springfield arsenal is now engaged in the manufacture of rifles and carbines on the new model.

The Iron Column at Delhi.

In the mosque of Kuttub Shaw, near Delhi, India, stands an iron column, of which we have frequently made brief mention, and which is believed to be the most remarkable relic of ancient iron working in existence. In a report made by Col. A. Cunningham, on the Archæology of India, in 1862, we find the following concerning it:

"The iron pillar records its own history in a deeply cut Sanskrit inscription of six lines on its western face. The inscription has been translated by James Prinsep, who remarks that, 'the pillar is called the arm of fame of Rajah *Dhava*, and the letters cut upon it are called the typical cuts inflicted on his enemies by his sword, writing his immortal fame.' It is stated that he subdued a people on the *Sindhu*, named *Vahlikas*, who must be the *Bahikas* of the Punjaub; and, lastly, that he 'obtained with his own arm, an undivided sovereignty on the earth for a long period.' The above is the whole of the meagre information that can be gathered from this inscription, save the bare fact that the Rajah was a worshipper of Vishnu. The date of the inscription is referred by James Prinsep to the third or fourth century after Christ; but Mr. Thomas considers that this is 'too high an antiquity for the style of the writing employed on the monument.' I agree, however, with Prinsep, as the characters appear to me to be exactly the same as those of the Gupta inscriptions. I have already suggested the year A.D. 319, which is the initial point of the Balabhi or Gupta era, as an approximate date for Rajah *Dhava*, as I think it not improbable that he may have assisted in the downfall of the powerful Gupta dynasty.

"According to universal tradition, the iron pillar was founded by *Bilan Deo*, or Anang Pal, the founder of the Tomara dynasty, who was assured by a learned Brahman that, as the foot of the pillar had been driven so deep into the ground that it rested on the head of *Vasuki*, king of the serpents, who supports the earth, it was now immovable, and that dominion would remain in his family as long as the pillar stood. But the Rajah, doubting the truth of the Brahman's statement, ordered the pillar to be dug up, when the foot of it was found wet with the blood of the serpent king whose head it had pierced. Regretting his unbelief, the iron pillar was again raised; but owing to his former incredulity every plan now failed in fixing it firmly, and in spite of all his efforts, it still remained loose (*dhila*) in the ground; and this is said to have been the origin of the name of the ancient city of *Dhili*.

"This tradition has been variously reported by different authorities, but the main points are the same in all. . . . The popular belief in this tradition is confirmed by the well known verse—

Killi to dhilli bhai,
Tomar bhaya mat hin.
The pillar became loose by Tomar's folly.

Kharg Rai relates this tradition in a more poetical form, making the date the Samvat year 792, or A.D. 736."

With further respect to this column, several writers appear to have confounded it with the stone column, known as Feroze Shah's Laht, described in the "Asiatic Researches," vol. i., p. 371, as the following will show:

"At ancient Delhi," says Bacon, "there is an extraordinary pillar, apparently metallic, but in reality of red sandstone, bearing a silvery bed in it, now called Feroze Shah's Laht, or walking stick. *Thirty feet of it are above ground*, and buried many feet in the earth. There is one exactly similar to this at the Cootub Minar, and another at Allahabad. All are supposed to be of the same origin, but their history is quite lost in obscurity. They are covered with inscriptions. Forrest mentions that this pillar at the Cootah Tower is of solid iron, and that the whole temple is a subject of great doubt and incertitude."

Another learned archæologist writes concerning it: "The inscriptions thereon are of *different dates*. Some, the most ancient, in the Regari letters, others in Sanskrit, all prefaced by the mystical holy invocation, O'M. The events engraven involve very great periods—thus one is decidedly the year of Christ 67 (by computation)."

If this last account has reference to the column described by Colonel Cunningham, it is unquestionably much older than he concludes. In the midst of such conflicting or rather confused testimony, which is all we yet possess, it would be unwarrantable to attemp to fix the date of this remarkable work. The utmost at which we can now arrive is, that its antiquity is very considerable. This conclusion being arrived at, not only by reason of the absence of any precise generally current information regarding it, but judged of also from the universal testimony throughout the East, both in material and literary relics, of a very remote and, contemporaneously, very high intellectuality there prevailing.

As to how this remarkable column was produced, some have been bold enough to conjecture. As a suggestion, indicating what may be at least a probable mode in which large pieces of iron were produced in ancient times, we refer to the account presented by Mr. Alfred Russell Wallace, of the manner of producing the "sacred krisses," in the island of Lombock. These were made at the taking of a census, the Rajah commanding a needle to be brought him for each head of the population. These needles were collected by the chiefs in the various villages and towns, and a bundle sent from each to the Rajah, which contained a number of needles corresponding to the number of the people; and when it was quite certain that every village had sent in its bundle, the Rajah divided the needles into twelve equal parts, ordered the best steel worker in Mataram to bring his forge, his bellows and his hammer, to the palace, and to make twelve krisses under the Rajah's eye, and in the sight of all men who chose to see it.

Whether, then, the iron column at Delhi is the result of taking a census, after the manner adopted by the Rajah of Lombock, cannot be told; but that it is a monument in commemoration of some grand event, or of some high religious belief and practice, no one will question.

There has been some confusion in the minds of those who have seen and described the column, as to whether it is a forging or a casting. Mr. Mallet, after carefully reviewing the testimony on both sides, concludes as follows:

"We are thus obliged to consider that this pillar is not a casting, but is a huge forging in native Indian or other Asiatic made wrought iron, and if so, the question arises—how was it forged? We have no evidence that 'blooms' of more than 90 lbs. or 100 lbs. each were ever made by modern methods; these would be too small to build up singly into a bar of 16 inches diameter. It is, however, conceivable that such little 'billets' as were procurable from such blooms might be welded into bars, and these bars made into a fagot, out of which such a bar, by sufficient means for bringing it to a welding heat, and for then hammering it, might be welded into a cylindrical bar such as that of this iron pillar.

"Now, the limit to the size of a fagot that can be welded with given means of heating it, is found to be when the mass is so great in proportion to the power of the furnace that the exterior of the mass, when the heat is being applied, oxidizes and melts away (owing to the slowness of heating, and hence, long continuance of exposure to the heat) as fast as piece after piece is laid on to make up for the waste.

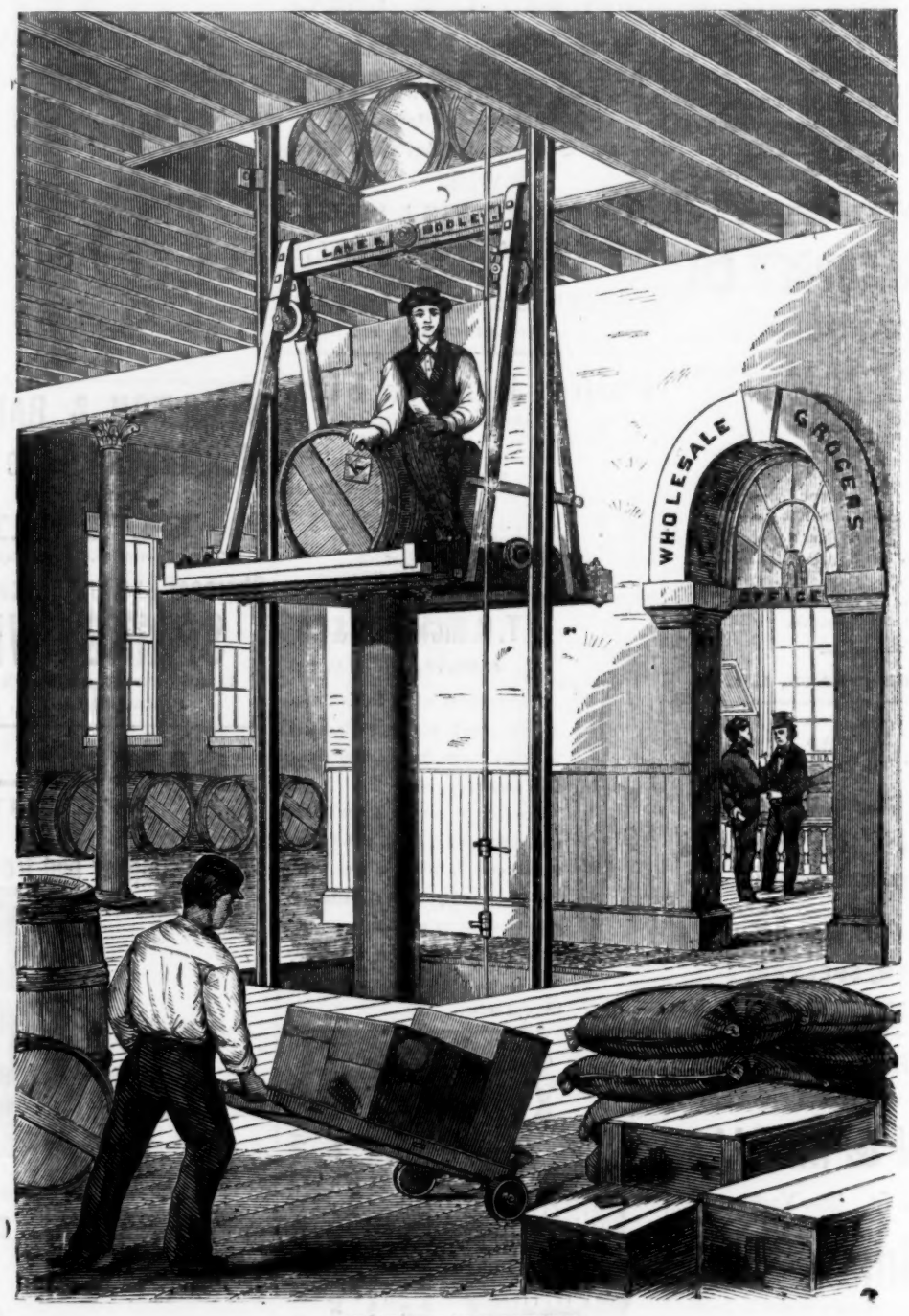
"This limit has been reached before now even in our best reverberatory forge furnaces; it actually was touched upon at Liverpool, in forging the Mersey Company's great 12 inch gun. Unless, therefore, the iron-workers of India, between the third and fourth century, A. D., possessed air furnaces and lofty stacks, or blowing apparatus of some sort, upon a scale now unknown, and, indeed, not conceivable in any form of native apparatus, we may confidently affirm that no fagot to form a welded bar of 16 inches diameter could have been by any possibility brought to the welding heat at all, or without such waste as to prevent it ever being forged.

"If we pass from the heating of such a bar to the forging of it, our difficulties are still greater. The limit in size of *hand forged* work in Europe was about reached in the production, in days gone by, of the heaviest 'best bower' anchor of a ship of the line. The largest section of the anchor shank, when welded to the arms, was about 8 inches, or perhaps 9 inches, across, and the welding was effected by the blows of 24 'strikers,' trained to strike in time, and swinging 14 lb. to 28 lb. sledges. The shower of blows dealt for some minutes' spell upon the mass of iron of this large section produced a very insignificant effect, so that both the fagoting and the welding of such anchors were very often defective, and the strikers having to stand close in a ring, within the short distance for swinging the sledge from the glowing iron, were greatly scorched by its radiated heat, and some with fine skins were unfitted for the work. Hereabouts, then, the limit to hand forging was reached, both as to the power of the hand sledge to act upon the mass of iron, and as respected the power of the men to endure the heat radiated from the glowing iron at the short distance from it, limited by the length of the handle of a sledge when swinging."

Commenting on Mr. Mallet's conclusions, Mr. St John V. Day, says:

"Now, the section of the shank of a 'best bower' of 8 or 9 inches diameter, is to that of the Delhi iron pillar, about as 64 to 201—*i. e.*, the latter would radiate from its heated extremity more than thrice as much heat, and an equal length would be more than thrice as great a mass to be dealt with by the sledge hammer, than in the case of the anchor. We may, therefore, affirm that, even in European hands, a bar of wrought iron of 11 inches diameter could not be welded up by hand labor with the sledge. The latter would produce no adequate impression—least of all in the comparatively feeble hands of Asiatics—and human skin and muscles could not withstand, at 5 or 6 feet off, the intolerable glare and scorching of such a mass heated to the welding point. How then was this Delhi pillar forged in India, even assuming that some means for heating it existed? Forging by power in some form of course suggests itself, but upon what source of power can we even speculate? Human muscles, and the 'bullock walk' by which the water skins, or 'bheesties,' are drawn up from the wells or tanks, appear to be the only present sources of power in India. The water wheel, or *noria*, for raising water by the application of such animal power is common; but the production of power by the descent of water on a wheel seems never to have been known in India, where, indeed, except in the hill districts, no falls for water-power exist. The windmill, though said to have been known in Persia from some very remote period, has never been seen in India, and it need scarcely be said steam-power is out of the question."

"It is barely imaginable that some form of falling tup hammer raised by men acting by ropes, after the manner of the old singing engine for pile driving, may have been employed, or some rude form of tup or tilt hammer, moved by bullocks, acting on a walking wheel. It is for Indian archæologists to discover if there be any records or traditions of such appliances, without which the methods by which this huge pillar was forged must remain inexplicable. The pillar itself stands before us, so far, a metallurgical enigma. If it stood alone, and were this great ancient forging in wrought iron alone known to exist in India, we might pass it by, content to suppose it too isolated an instance on which to found any conclusions as to the iron metallurgy of that country in former ages; but, although little noticed, and apparently quite unknown to our European writers on iron metallurgy, other examples likewise exist."



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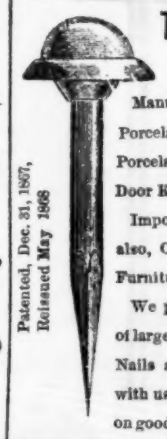

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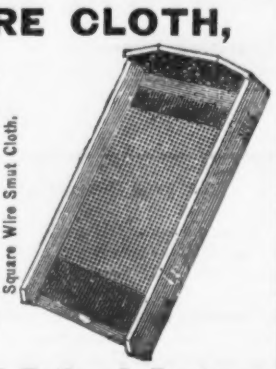

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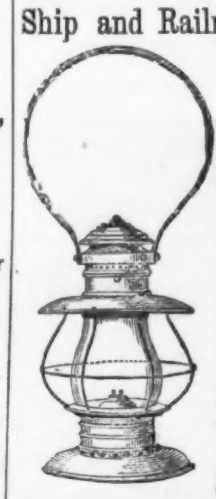

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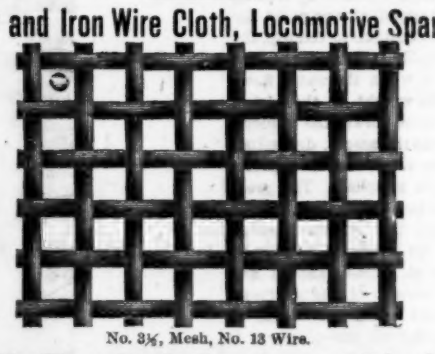

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No. of Wire	Wt. per sq. foot.	Price cts.	No of Wire	Wt. per sq. foot.	Price cts.	No of Wire	Wt. per sq. foot.	Price cts.	No of Wire	Wt. per sq. foot.	Price cts.	No of Wire	Wt. per sq. foot.	Price cts.	No of Wire	Wt. per sq. foot.	Price cts.
10	3.47	40	11	3.20	38	12	2.80	35	14	2.43	33	16	2.00	30	18	1.39	30
11	2.75	32	12	2.45	31	13	2.15	30	15	1.97	30	17	1.47	25	19	1.08	25
12	2.10	26	13	1.85	25	14	1.62	25	16	1.51	25	18	1.11	20	20	0.76	20
13	1.61	22	14	1.41	20	15	1.31	21	17	1.10	20	19	0.85	18			

These Cloths are used for Mines, Jail, Asylum, and Storehouse Window and Door Guards, Malt Floors, Bulkheads and Floors for Grain Elevators and Grain Vessels. SPECIAL PRICES FOR LARGE ORDERS.

The Lake Superior Iron Region.

II.

THE LAKE SUPERIOR IRON CO.

This company contests with the Cleveland Company alone, for the supremacy in the production of ore, over all the other mining companies in the region. It operates a large number of mines, all of which are situated in the vicinity of Ishpeming, upon deposits of hard or soft hematites.

The Lake Superior mines proper are situated in the western extremity of the town, upon a series of deposits of hard ore of immense extent, which were opened in 1857. The workings consist of a succession of excavations, the largest of which is nearly 500 ft. in length, and considerably over 100 in width, and has reached a nearly uniform depth of 100 ft., showing a deposit of wonderful richness and purity—there being visible at the 100 ft. level, a width of nearly 50 ft. of pure slate ore. The other deposits are also of very large size, and all are lense shaped like those of the Cleveland, with leaders projecting into the encompassing strata, making it necessary to remove a large amount of waste material.

The majority of the ore is slaty in structure, similar to the Jackson, and is remarkable for containing crystals of martite, the octohedral variety of peroxide of iron, distributed throughout its mass. It is very rich and pure, yielding about 65 per cent. of metallic iron, and containing but a small amount of sulphur, and, practically, no phosphorus. A small proportion of the ore is granular in structure, the deposit differing in this respect from the Cleveland, where by far the largest quantity is granular. The accompanying rocks are, as usual, quartzite, diorite, talcose and chloritic schists, and "mixed ore." The latter material invariably accompanies the best deposits of ore.

In the rock upon the north side of the main workings a shaft has been sunk to a depth of 150 ft., at the foot of which tunnels have been cut in different directions to the deposit, and are connected with the 100 foot level above by winzes or subordinate shafts. The greater part of the ore mined above is thrown into these, falling into the tunnels, through which it is carried to the shaft. In due course of time, these winzes are widened so as to form stopes, such being the system of mining at present in use. Considerable open quarrying is done upon "leaders," at points above the 100 foot level, the ore being hauled to the surface by teams, over a winding road along the sides of the excavation. The ore being quite soft, and easily torn asunder, the use of the more powerful explosives is unnecessary, and ordinary blasting powder is alone employed. The mining is apparently done quite cheaply, as very large masses of ore can be thrown down with a single shot, and in a large portion of the deposit there is no rock to be separated.

During the entire year the work is carried on unceasingly both day and night, all shots being fired at intervals of three hours, at which times the mines are deserted by all. Rock tunnel work is accomplished by the use of Burleigh drills, with an accompanying great saving in time and expense. Seven hundred feet of tunnel have been driven with them here in seven months.

Three grades of ore are produced by this company. The second grade ore, of which there are many thousand tons in stock, consists of masses of slate ore intersected by seams of quartz. The third grade ore contains a still larger quantity of the latter material. These ores are to be smelted in the company's furnaces at Marquette and Ishpeming. The machinery in use at these mines is about the best to be seen in the district. The hoisting engine for the main shaft is horizontal, having the following dimensions:

Diameter of cylinder	20 in.
Length of stroke	36 in.
Diameter of winding drums	6 ft.

The most improved form of friction gearing is used in connection, involving the use of steam levers. A plunger and bucket pump is worked by the same engine. About 450 skip loads, of from 2 to 3 tons each, are hoisted per day.

To prevent overwinding, the following arrangement is employed: A line of wire is attached at one end to a reel upon the main shaft, from thence passing over a pulley above, and being provided at the other extremity with a sinker with pointer attached, running in a vertical groove on the side wall of the room, upon which points are marked corresponding to the different levels in the shaft. By suitably adjusting the arrangement, the pointer shows when the skip has reached the top of the shaft, at which instant the drums are thrown out of gear. This arrangement is in general use throughout the region.

But a short distance to the southeast from the hard ore workings is a deposit of soft hematite, which has been extensively worked, the excavation being at present about 400 feet long, 50 feet wide, and 100 feet deep. A shaft has been sunk to the north of it, and tunnels driven from its foot to the seam in the same manner as at the hard ore workings. The deposit is doubtless of great extent, and apparently of good quality, yielding, it is said, about 55 per cent. of metallic iron, and so soft as to be easily mined with picks when loosened by an occasional shot.

About 1½ miles to the southwest from here are the Section 16 and Parsons mines, worked by the company. The deposit at both places is composed of slate and granular ore, considerably mixed with rock, and usually not of the very highest order. The latter mine has only been opened a short time, and will not produce over 5000 tons this season.

The Section 21 and New England mines, upon deposits of soft hematite, adjoin each other, and are believed to be on the main range of that material. The latter mine has been worked for a number of years by its former proprietors, producing over 100,000 tons, a large part of which was slate ore, of which there is a deposit upon the property, of like nature with the Parsons or Section 16.

Further to the westward is the recently discovered deposit of hard ore adjoining the Saginaw property, which has been named the "New Superior." The indications at this point are very promising. Two good sized openings have been already made, from which a large quantity of first-class ore has been extracted. Both the slate and granular varieties are found, and the ordinary quartzite hanging wall is replaced by a peculiar variety of quartzose conglomerate.

The total production of the Lake Superior Company since 1858 has amounted to 1,349,630 tons, of which 73,611 were shipped during the present season up to August 20th.

Upon the westward continuation of the hard ore deposits of the Lake Superior Company at Ishpeming, and directly contiguous to them, is the Barnum Mine, the property of the Iron Cliffs Co. The ore is of precisely the same character as that of the former mine, and fully equal to it in quality. The present opening is about 1000 feet long, 60 feet wide and 70 feet deep. The production to date has been 158,556 tons, of which 31,559 tons is the product for 1873 up to August 20th.

Adjoining the Section 21 Mine of the Lake Superior Co. is the Winthrop Mine, of soft ore, owned by a number of Chicago capitalists. The ore is dark red and black in color, and considered one of the best of the kind in the region. The workings are quite extensive, about 41,000 tons having so far been extracted, of which 16,000 during the present season. The property on which is situated the Saginaw Mine, consisting altogether of 200 acres, was leased for a number of years by the Cleveland Rolling Mill Co., the price paid being $300,000. The present openings immediately adjoin those of the New Superior Mine, the ore being of nearly the same character. Further to the westward, on the same range, are the Goodrich and Albion mines, which are as yet but little developed. The production of the Saginaw for 1872 was 19,160 tons; for 1873, 18,882 tons. The others have as yet made no shipments.

PITTSBURGH AND LAKE ANGELINE CO.

The mines operated by this company are the Iron Mountain Mine, near Negaunee, which is not worked at present; the hard and soft hematite mines, at Lake Angeline, near Ishpeming, and the Edwards Mine, of magnetic and specular ore, at Humboldt. The hard ore mine, upon the south side of Lake Angeline, consists of an excavation over 500 feet long, with an average width and depth of 40 to 50 feet. The seam dips in under the lake at a high inclination, and the mining is conducted under rather unfavorable circumstances at present, the foot wall being in part composed of a weak talcose schist, much of which has cracked up and slid into the excavations. The ore is both slaty and granular in structure, and of fair quality, though not up to the standard of the Cleveland and Lake Superior.

The soft hematite deposit is but a short distance to the westward from this, forming the side of a low ridge. In the opening already made a curiously mixed formation is visible, consisting of a number of seams of different qualities of ore, intersecting each other at varying angles. Much of it is of an ochreous nature, varying in color from silvery gray to red and brown. A large proportion consists of the brown variety, containing considerable kaolimite, some is black and manganiferous, and, as a whole, the deposit may be stated to be of a very good quality, and unusually free from silica. A deposit of similar nature adjoining it is worked by the Iron Cliffs Co.

Between Ishpeming and Humboldt, a distance of 12 miles, no deposits of any importance have as yet been discovered. The country is exceedingly wild, swampy, and difficult to explore, showing but few surface indications; so that while there is every reason to believe that the ore belt is continuous throughout that section of the country, it is probable that careful magnetic and geological surveys will have to be made before its course can be definitely traced.

A complete change in the character of the ore takes place at some point in the intervening space, for at Humboldt we no longer find the slate, granular and soft hematites, nor do they occur at any point to the westward of this, being entirely replaced by specular and magnetic ores.

At the Edward's Mine the two latter varieties occur together—the deposit consisting of a number of well defined seams of magnetic and specular ore, inclined at a high angle, and separated from each other by talcose schist. Of these only the two middle seams are at present worked, the mining being now carried on at a depth of 300 ft. from the surface. This mine is peculiarly interesting, from the fact of its being really the only one in the district where the underground system is thoroughly carried out. Shafts are driven 200 ft. apart along the outcrop of the seam, and levels are made every 60 ft. as they go down. At each level a drift is cut from the shaft on each side for a distance of 20 ft., conecting with a winze sunk from the level above. When the connection is made the latter is widened so as to form a stope. That portion of the seam between the two shafts is then entirely worked out, leaving only an "arch," or pillar, about 10 by 15 ft., half way between them. This, together with the shaft pillars, suffices for the support of the "hanging." Both varieties of ore occurring here are of the best quality, and present many types of structure. They are sent to market together, owing to the inconvenience of separation and classification. The total production of this mine up to Aug. 20, 1873, was 144,453 tons, of which 20,376 were shipped during the present season. The entire production of the Pitts. and L. Angeline Co. during the same period was 478,808 tons, and for the present season 45,390 tons.

A short distance to the eastward from the Edwards is situated the well known

WASHINGTON MINE,

which has been worked for nearly eight years, and during that time shipped over 300,000 tons. The deposit is similar to the Edwards, consisting of four parallel seams of magnetic and specular ore of varying thickness, having a general eastern and western direction, and separated from each other by talcose schist. The whole formation is overlaid by 75 to 100 feet of quartzite, and underlaid by diorite. This mine was a very expensive one to open, the main or north seam being covered by a considerable thickness of mixed ore, constituting a sort of cap, all of which had to be removed. A very high and wide tunnel was also driven from a point at the level of the railroad to the seam, a distance of 450 feet, making the total cost of opening about $1,000,000.

After reaching the seam the tunnel follows its course. That portion of the seam above it has mostly been worked as an open quarry, the cap of mixed ore being entirely removed, but the workings are fast being carried below its level, and will eventually assume more of a subterranean character. The Burleigh drills are also used at this mine for drifting and tunneling. About 200 men are employed. The magnetic and specular ores occur together, as at the Edwards, and are not classified. Pyrites, when present, is usually segregated, restricted to certain points in such a way as to be readily separated. The Washington is a standard ore, and has a favorable reputation for cleanliness. A large quantity of ore, slightly mixed with quartz, has been extracted, but none shipped as yet. The company owns 1220 acres of land, and claim to have three miles of iron range. The total production for 1873, up to August 20, was 20,678 tons.

The Oakdale Furnace.

The following is sent us from Oakdale, Tenn., under date of Oct. 11th:

The Oakdale Furnace was completed August 23d, since which time it has been "drying out." By October 15th all the necessary connections will be made and the furnace receive its burden, ready to begin its work of smelting the rich iron ores which fill the hills around it. A very superior quality of ore is coming up out of the shaft, and between 4000 and 5000 tons are already on hand. The supply of ore, coal and coke, now on the stock yard, or ready to be delivered there, would cost a Cleveland, Ohio, furnace more than $60,000 at present prices. The immense beam engines, we ghing nearly a quarter of a million pounds, work to perfection, and will furnish power sufficient to blow 80 tons daily, or to run both furnaces, when a "twin" to the present one shall be erected. They are probably the most powerful engines in the State.

The company have prepared plans for a foundry and a machine shop, which will be complete in every respect, and erected on a scale that will provide fully for the future growth of the works. This additional enterprise will be pushed forward as soon as the furnace is in blast—all the necessary foundry castings being already on the grounds.

The amount of valuable machinery collected at Oakdale is already considerable, and is being constantly added to. In prosecuting their work the Oakdale Company will shortly have 8 steam engines constantly employed. Engine lathes, steam pumps, hoisting apparatus, drill presses, and a hundred other costly machines, make up the total necessary to the successful and economical management of this vast undertaking.

We are glad to learn that a number of reliable houses have solicited, in advance, consignments of the entire product of the Oakdale Furnace, and that recently the company were invited to contract for 300 tons monthly, running through the entire year 1874. After a season of constant and heavy expenditure, requiring the most cautious and watchful financiering on the part of the official management, it must be agreeable to feel that the point is at last reached where the heavy expenditures for construction, &c., are almost at an end, and the tide just ready to turn the other way.

Everything promises for the Oakdale enterprice a substantial success. We are heartily glad that this is so, partly for the sake of those who have so dilligently and carefully carried the work forward, and partly because with the signal success of Oakdale, capitalists North and East will become all the more thoroughly aware of the wealth now lying neglected within the bosom of this wonderful mineral region.

Germany has finally decided on practically testing the proposition of abolishing supporting telegraph poles by burying all the wires in the earth. Tubes are to be laid in shallow trenches, and through these wires are to run. If this project prove a successful one, it will no doubt meet with a universal adoption. While the poles, especially in large cities like Philadelphia, are yearly becoming more of an inconvenience, the subterrancan system has been rejected on account of the difficulty it would entail in discovering faults and breaks, and the obstacles to traffic on the thoroughfares which would result from the continual digging up of the streets, which would be rendered necessary to make repairs. As the practical Teutons are obligingly going to try the new plan, we may contentedly sit in the shadows of the bulky poles and carefully observe its workings.

Messrs. Cartwright, McCurdy & Co., Youngstown, O., propose erecting a new mill, the coming winter, for the manufacture of merchant bar. It will be built adjacent to their present mill, and will contain fourteen puddling and four heating furnaces. The firm now manufacture hoop iron exclusively

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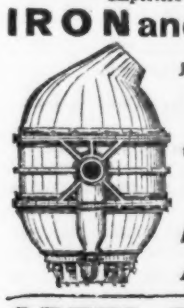
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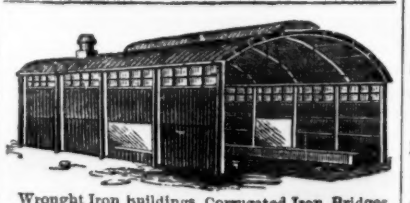
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New Patents.

We take from the records of the patent office at Washington the following specifications of certain patents lately issued, which will be found interesting:

IMPROVEMENT IN FURNACES FOR PRODUCING MALLEABLE IRON.

Specification forming part of Letters Patent No. 142,716, dated September 9, 1873, issued to David R. Nash, of Brooklyn, E. D., New York.

Figure 1 is a vertical section on the line A B of Fig. 3, showing construction of parts of the furnace, and also its arrangement with reference to puddling furnaces. Fig. 2 is a plan view, a portion of the top plate being broken away for the purpose of showing a section on line 1 2 of Fig. 1. Fig. 3 is a horizontal section on line of 3 4 of Fig. 1. Corresponding letters designate corresponding parts in the same figures.

This invention relates to that class of furnaces which are designed to be used for the purpose of deoxidizing ores from which iron and steel are made; and it consists in the construction, combination, and arrangement of some of its parts, as explained.

In constructing this style of furnace a hearth, *a a*, of cast iron or other suitable material is used, said hearth being supported jointly by

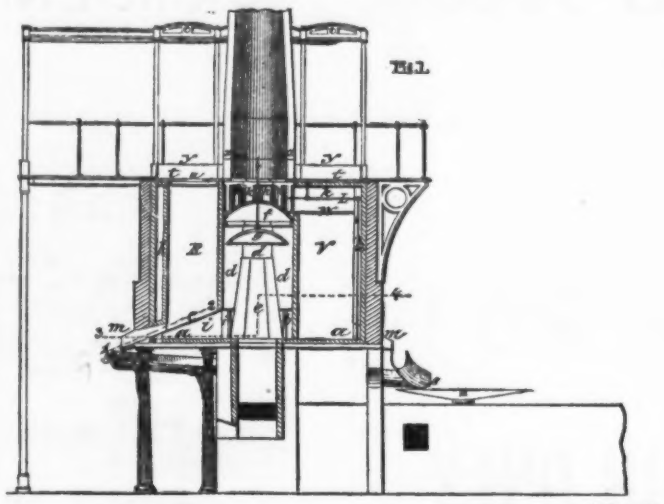

Fig. 1.

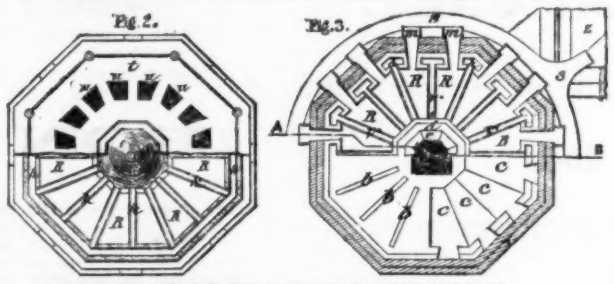

Fig. 2. Fig. 3.

IMPROVED FURNACE FOR PRODUCING MALLEABLE IRON.

the rear walls of the puddling furnace and upon cast iron columns, its outer walls or shell being built of brick, and of the same octagonal form as that of the hearth, it being provided with a lining of fire bricks, or any other refracting material, and bound together with suitable clamps. The walls of the furnace are diminished in thickness at the proper distance above the hearth, as shown in Fig. 1, the offset thus formed answering as a seat for the brackets which support the galleries, and they are pierced at proper intervals, near the hearth, with openings *m m*, which communicate with the retorts R R for the deoxidized ore. These retorts consist of separately removable chambers, of substantially the form shown in Figs. 1 and 3, their inner and outer walls being concentric with the walls of the shell, thus forming, by their interior surfaces, a receiving chamber, *d*, which communicates directly with the flues of the puddling furnace below through the induction passage *e*, their exterior surfaces being surrounded by the heated gases which pass up through the flue space *h h*, which is extended upward the entire length of the furnace, the connection between the receiving chamber *d* and the flue space *h h* being effected by the connecting flues *i i*, beneath the retorts. In the drawing herewith presented there are represented sixteen, but there may be more or less, according to the capacity which it is desired to give to the furnace; and it will be seen that by making each one separate from and independent of the other a very decided advantage is gained, as in the event of any one of them becoming so fire injured by use or accident as to require removal, it can be removed and replaced without interfering with any of the others, they being quadrangular in form, and made by the inventor by suitable tile between the inner and outer walls of the furnace, which rest directly upon the bridge plates *c c*, which form the top of the connecting flues *i i* running beneath the same, the space *v v* being left between the walls of the retorts and opening into exterior flue space *h h*, thus allowing a free circulation of the heated gas between the same. These spaces are carried up to *u*, where they are cut off by tile coverings, forming the bottoms of return flues *k k* which lead to the stack. The exterior flue space *h h* and the return flues *k k* are inclosed at the top by a covering of fire brick, and the whole is surmounted by a cast iron plate, *t t*, to which the brackets for sustaining the gallery are attached. The plate *t t* is pierced with openings *u u*, of such a size as to conveniently admit changing the retorts. These openings also serve as an outlet for the carbonic acid and moisture expelled by the action of the heat. The flanges *x x* and *y y*, upon the top of the plate *t t*, serve, respectively, to retain the stack in position, and to form a receiver for the ores for charging the retorts. At the angles of the flanges *y* circular bosses are placed for securing the standards which sustain a circular sling for delivering the ores above the retorts. The induction flange *e* is intended to carry the heated gases resulting from combustion well up into the receiving chamber *d*, thereby preventing their immediate escape through the connecting flues *i i*, in order that they may remain in contact with the retorts until the requisite proportion of the heat has been absorbed thereby. Immediately over the induction flange *e* there is suspended a deflector, *g*, which is operated by a lever, L, and a suitable rod, it being intended to regulate the draft.

The operation of the furnace may be briefly stated as follows: The ores being introduced into the retorts with the proper percentage of carbon, and subjected to the action of a red heat for the required period of time, results in the expulsion of such carbonic acid and moisture as they may contain. The gangue of the ore absorbs a portion of the oxide of the metal, forming a fusible double silicate of allumina and protoxide of iron, reducing the mass to an amorphous state, in which it is readily drawn off through the openings *m m* into the chute *s s*, leading to the receiver over the puddling furnace, from whence it is introduced to the puddling hearth through the opening *z*, as may be required. The gases, upon being introduced into the receiving chamber *d* through the induction passage *e*, impinge on the deflector, which should be so adjusted as to produce the last result, and will be by it deflected along the inner walls of the retorts toward the hearth, and from thence through the connecting flues *i i* beneath the retorts into the interior flue space *h h*, at the same time circulating between the retorts through the space *v v*, and finally through the flues *k k* to the stack and out into the atmosphere.

Claim.—1. In a furnace for deoxidizing ores, the combination of a series of separately removable retorts arranged around a common center, flues for conducting the heated gases from a puddling furnace, or from puddling or heating furnaces, to and around the retorts.

2. The combination of the separately removable retorts R R and the chute *s s* for conducting the deoxidized ore to the puddling furnaces.

3. The combination of the central induction passage *e*, receiving chamber *d* and deflector *g*, arranged substantially as described.

4. The combination and arrangement of the receiving chamber *d*, induction passage *e*, connecting flues *i i*, flues or spaces *v v*, flue space *h h*, and return flues *k k*.

IMPROVEMENT IN RESTORING TINNED SHEET IRON.

Specification forming part of Letters Patent No. 141,109, dated July 22, 1873, issued to William E. Brockway, of New York.

The process consists in subjecting old cans or other useless tin vessels (after collecting a sufficient number) to a temperature of about 1000° in a suitable oven constructed for the purpose, and thereby divesting the iron of all tin, and annealing the iron.

The iron, before it is tinned, is invariably of good quality, usually rolled from "Swede," "Russia," or "Norway" bars; and in rolling it thin enough for tin of ordinary gauge the iron is rendered hard, and its pliability is in some measure destroyed.

Tin melts at about 450°, but will not entirely leave the iron until subjected to a higher temperature. The iron is subjected to a temperature of about 1000°, or brought to a cherry red. This cleans off the tin and anneals the iron, rendering the latter very pliable, and adapts it for many purposes where toughness and pliability are essential. When the iron is taken from the oven the pieces are passed between rollers, which press upon it just sufficient to straigthten it and prepare it for market.

In heating the iron particular care must be taken as regards the temperature to which it is exposed, as a slight overheating will oxidize and injure it. In submitting the tin to this temperature it is oxidized to such an extent as to be practically valueless. In preparing the iron for market it may be remarked that its marketable value depends upon its perfect freedom from tin.

Claim.—The above described process for restoring and utilizing waste material, substantially as set forth.

IMPROVEMENT IN BLAST FURNACES FOR SMELTING IRON AND OTHER ORES.

Specification forming part of Letters Patent No. 142,464, dated September 2, 1873, issued to Samuel W. Harris, of Albany, N. Y.:

This invention relates to blast furnaces in which a hot blast is used, as in the reissue No. 5397, dated May 6, 1873, of original Letters Patent No. 123,894, dated February 20, 1872. It consists in the use of a cover applied to the head

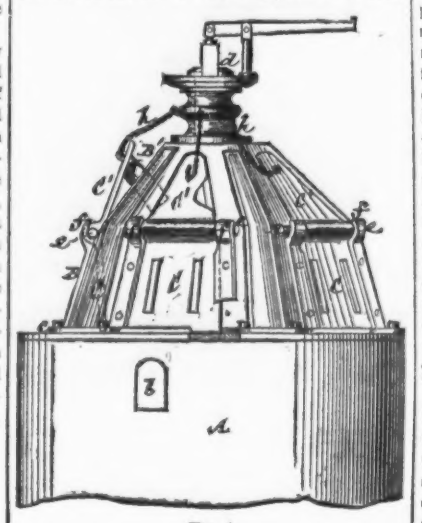

Fig. 1.

IMPROVEMENT IN BLAST FURNACE COVERS.

of the furnace above an opening, or openings, provided for the exit of the gases to the place where they are to be utilized. These covers are provided with one or more charging apertures, and swinging lids, or doors, for closing the same, with an opening for the escape of surplus gas, and a damper to regulate such escape. This improvement consists in a novel construction of the cover on the head of the furnace, and of the swinging doors, or lids, for closing the same automatically, whereby increased facility is afforded for charging, the swinging lids, or doors, are effectually closed, and an upward escape away from the face of the laborer engaged in entering the charge is provided for the gases through the charging opening or openings in the cover.

Figure 1 is a side view of the upper part of an ordinary blast furnace with improvement applied; and Fig. 2, a central vertical section of the improved cover with its attached doors. Similar letters of reference indicate corresponding parts.

A represents the upper part of the body of the furnace, having one or more openings, *b*, for the exit of the gases to be utilized; and B, B' is the cover on the head of the furnace above the openings, *b*. This cover, which is of polygonal shape in its transverse section, is composed of a main body portion, B, mounted on the tree nail plate, *c*, and of an upper portion, B', the lower, or main body portion, being constructed to slightly incline inward in an upwardly direction, and the upper portion, B, contracting more rapidly in the same direction, and being provided with a top opening and valve, or damper, *d*, for the escape of any surplus gas. C, C' are vertically swinging doors, arranged to close charging openings, D, D', in the sides of the cover. These doors are hung, by horizontal pivots, or trunnions, *e*, *e*, intermediately of their length or hight, within bearings, *f*, *f*, at or near the junction of the top part, B', of the cover with the lower portion, B, thereof; and said doors are so shaped, constructed, and arranged that the lower halves, or portions, C, of the doors close against the outside thereof; and the inwardly sloping construction of the tops of the doors away from

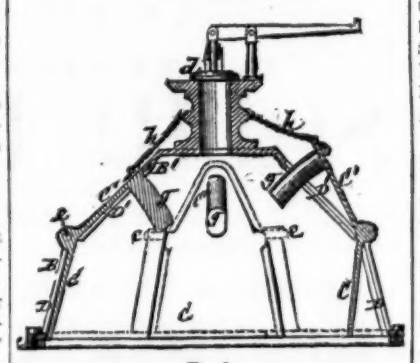

Fig. 2.

the trunnions, *e*, *e*, gives an overhanging weight in favor of the closing of the doors, even though the lower portion of the cover, against which the doors shut from the inside, inclines inwardly in an upward direction, or is out of vertical position, which greatly favors the charging of the furnace. Weights, *g*, *g*, may also be added to the upper portions of the doors to insure the automatic closing of the latter; and chains, *h*, *h*, be appended to restrain the opening of the doors beyond a given limit. But the main advantage of the openings, D', in the upper portion, B', of the cover, closed from the outside by the upper halves, or portions, C', of the doors, is that, when charging the furnace with fuel, ore or flux, by barrow pushed against the lower half of either swinging door, an outlet is provided above for escaping gases away from the face of the laborer engaged in entering the charge, and the upper portions of the doors act as shields to protect him therefrom.

Claim—The combination, with the cover, B, B', of the vertically swinging doors, C, C', arranged to rock on intermediate pivots, or centers, *e*, *e*, and to open outwardly and inwardly in relation with the openings, D, D', against closing weight applied to the upper portion of the doors, substantially as and for the purposes described.

The Bochum Cast Steel Works.

The Works of the Bochum Company is surpassed only by the establishment of Herr Krupp, of Essen, in the amount of its cast steel production and the extent of the mining operations carried on in connection with it. They were founded about thirty years since, and remained but a small concern till taken, some twelve years afterward, by a joint stock company, which has raised it to its present commanding position. The company possesses coal mines in the vicinity of Bochum, and important iron mines in Nassau. It has two coke ovens of ordinary size at work at Mulheim, on the Rhine, while two larger ones, capable of producing from 1200 to 1300 cwt. daily, are now being built, and two more for next year and two for 1875 are projected. One of the coke ovens at Mulheim furnishes the coke for the two blast furnaces. The company employ 250 clerks and foremen, and about 6000 workmen. The production of cast steel is now about 11,000,000 lbs. per month, of the value of about 700,000 thalers. In 1872 the production was 96,000,000 lbs., worth about 6,000,000 thalers. In the same year Krupp produced 250,000,000 lbs.

Both crucible and Bessemer steel are made, the Bessemer works employing seven converters, chiefly for the production of material for rails, smiths' work, tires, and axles. All the steel tires are cut from single forged blocks, each containing from ten to twelve tires. They are again forged, bored, and turned consequently without welding.

A specialty of these works is the steel casting made by a process invented by their technical director, J. Mayer. Although not patented in Germany, it remained for ten years the exclusive property of this company and the two works in France and England which have obtained patents in those countries. Within the last seven years this process has been used by other German manufacturers. The ships' screws of 180 cwt. and 5⅛ metres diameter, the steam hammer cylinder, with its steam pipes and bed plate in one piece, weighing 140 cwt., and the cast steel bell of 1·88 metres diameter and 57 cwt., with sharply defined devices and inscriptions, exhibited at Vienna, show the great progress which has been made in this branch of manufacture. The first cannon produced by the company was made in 1847. The cast steel employed by them in this manufacture is produced by a patented process which is said to insure superior toughness and homogeneity. Another important specialty is the manufacture of bells of cast steel, a manufacture which dates from the year 1851. As long ago as 1855 the cast steel bells of this company attracted attention at the Paris Exhibition; indeed, so great was the doubt entertained of the possibility of employing steel in this manner, that special inquiry was thought necessary to ascertain that they were really of cast steel and not, as some suspected, of cast iron. These bells can be produced at half the cost of ordinary bell metal, and are much lighter and more durable, advantages that have greatly contributed to the rapid increase this manufacture has made since 1855. In the first seventeen years 1000 church bells were made, and of smaller kinds about 1500; in the last four years about 600 church bells and more than 1500 smaller ones.

The extent of the manufacture may be judged by the following particulars, bearing in mind that in France and England the process is patented, so that these countries and those usually supplied by them are necessarily excluded. Outside the German Empire have been delivered: To Austria, 185; to Russia, 73; to Belgium, 59; to Luxembourg, 38; to Denmark, 32; to Norway, 24; to Switzerland, 22; to Turkey, 3; to Roumania, 2; France, 1. Within the empire there hang about 1200. As yet, Asia has taken 6; Africa, 10; North America, 45; South America, 5. The prices run as follows: Bells up to 100 kilos., 20 silbergroschen per kilo.; bells from 100 to 150 kilos., 18 silbergrochen per kilo.; bells from 150 to 15,000 kilos., 16 silbergroschen. The company gives a five years' guarantee, and undertake to recast those which break after that time, at half the cost of new bells. As yet not one case has come to their knowledge of fracture in any of their church bells. In the smaller ones, such, for example, as those used on railways, fracture is not always to be avoided. For transport within the works the company employ 6 locomotives, 100 wagons, and 60 horses, and in carrying on the manufacture, engines amounting to 7500 horse-power, with 150 boilers, and a hydraulic lift on a large scale. The company possesses in and near Bochum 16 puddling furnaces, 100 heating furnaces, 27 cupola and reverberating furnaces, 121 steel melting furnaces, 135 forge fires, 44 air heating ovens, 24 pipe-clay and crucible burners, 80 cranes, with and without steam-power, 300 lathes, boring machines, &c., 36 steam hammers, the heaviest of which gives a blow of 600 cwt. A still heavier hammer, with a drop of 1500 cwt., has for some time been projected, but has only lately been set up. The works are capable of producing monthly 1000 pairs of wheels with axles for railway carriages, 40 locomotive and tender sets, 2000 carriage and 350 locomotive axles, 5000 tires for locomotives and carriages, 6000 springs for locomotives, &c., 10,000 spiral ditte, 16,000 to 18,000 rails, 200 to 300 joints, 150 to 200 planed shunt pieces.

For the benefit of the workmen there is an institution (in the form of a joint stock company) for the construction of better and cheaper dwellings, the general improvement of their condition, for provision in old age, and the support of families. The capital amounts to 1,500,000 thalers, 300,000 of which is contributed by the Bochum Company, 200,000 by the workmen and servants of the company, and 1,000,000 arises from deposits. After deducting a very moderate int rest (the Bochum Company reckons 2 per cent. per annum), the surplus income is devoted to the above-mentioned purposes. The workmen and servants of the company are not required to contribute to this fund. The sick fund, which has been in existence for eighteen years, is maintained by the workmen, with the addition of 5 per cent. on the part of the company.

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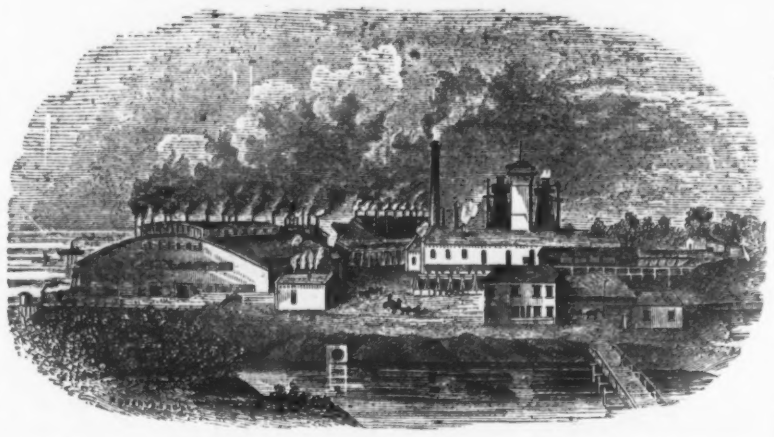

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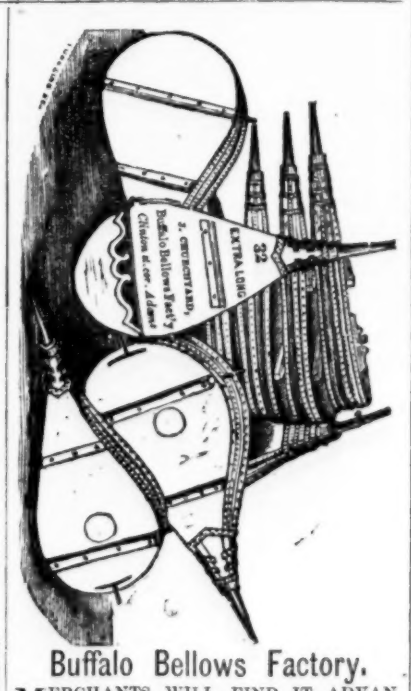

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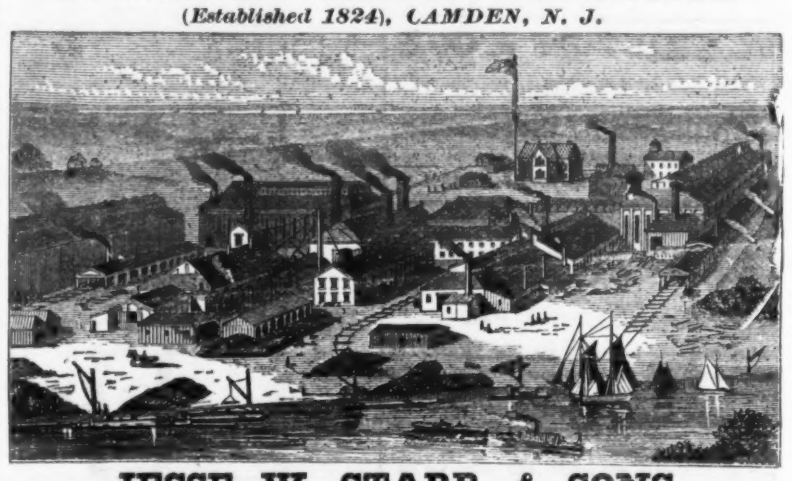

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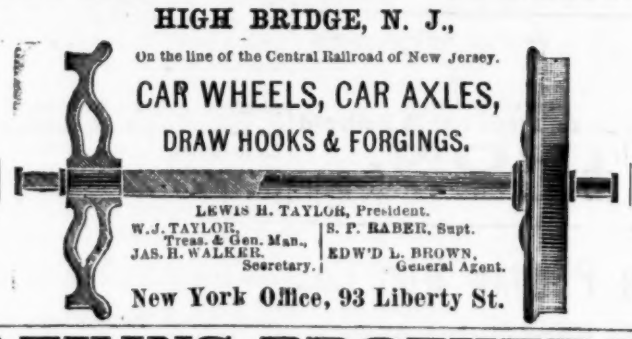

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Trade Associations.

A writer in the Philadelphia *Ledger* presents the following interesting facts respecting the history of trade unions:

The current session of the "Brotherhood of Locomotive Engineers," and the recent meeting of the "American Mechanics," recall the early history of kindred associations of mechanics and tradesmen in their guilds and unions. Some such things come down to us from great antiquity. Greece and Rome both had somewhat similar associations, and, although the mechanic arts then had little of the wide spread usefulness they now possess, the mechanics of those early days of human history knew how to combine for mutual aid and encouragement. They appear quite early in Spanish history, and their influence in checking the tyranny of the Spanish nobility was both great and wholesome. Germany next showed what such associations could do for the benefit alike of the members of the trades and guilds, and for the cities and States wherein they lived. After the long struggle against feudal customs had ended in the complete deliverance of workmen from subjection, they strove to maintain their influence by just such associations, but unwisely they went too far, and prescribed regulations for the government of their members, which in turn savored of the tyranny against which they were struggling, and that was hardly consistent with their own declarations of independence or with our modern notions of individual rights. The guilds or trades unions spread to England and France and the Netherlands, and there, as in Spain and in Germany, the towns in which manufacturing industries were best protected grew with the growth of the guilds, until the "trades" became the controlling power, and even the nobility, the clergy, and the other classes into which society was then much more markedly and strongly subdivided than it is now, left the cities to the control of the mechanics, and were forced to be content to retain their share of power in the political management of the government, while the social relations of the great towns were almost altogether relinquished to the bodies of different trades and arts, as they were then called.

In that early period of European history the social relations of the great land owners with their tenants was one that resembled very closely the connection of the slave owner and the slaves of our own Southern States before the Rebellion. The powerful help given to the emperors and kings, in their struggles with the avaricious, rapacious and lawless nobility, by the cities with their thousands of mechanics, secured, in return for the latter, a share of political liberty and personal privileges which made their union a matter of lasting import ance. The trades themselves, however, held sharply to the distinction between the masters and the journeymen, and these again to that between workmen and apprentices. It is almost within the recollection of men still living, that in Germany it was made free for any man to exercise any calling that he liked, and even to this day the apprentice is still obliged to follow a prescribed course of work and to show himself master of his handicraft before he is able to pursue it. In return for this severe discipline, there were given to every workman certain aids in times of sickness and necessity, and privileges that often were counted to be worth more in honor than money. Beside the control of great cities where industries flourished gave the mechanics the advantage of an education that was in some respects better than that of even the nobles and the great landowners. While many of the latter could neither read nor write, after the foundations of schools and universities in the cities governed by the trades, a master mechanic was not thought much of unless he could write out his own accounts and make his own drawings. Modern arts and mechanics grew up together, and the splendid buildings of the Flemish and German cities—the town halls, and even the church buildings—were designed and built by the men who worked at trades; and Cologne and Nuremberg, Ghent and Antwerp, are still beautiful with works of art in stone and iron, which transmit to us the glorious victory of the workmen of the 15th and 16th centuries. Unluckily, this epoch of success was followed by a gradual decline, for the exclusive possession of power within the cities by the trades led to abuses in the effort to maintain by monopolies and privileges that which had been secured by honest industry. Long wars impoverished the countries of Europe, the discoveries in India and in America of new sources of wealth overthrew the apparent prosperity of the guilds, and the gradual but steady growth and development of the rights of individuals put an end to the abuses of power which grew up as the guilds were perverted from their true purposes. The desire for more freedom of action in selecting and following a trade led many emigrants to our shores, and for some years in the early history of our country, under the present Constitution, we owed a large share of our prosperity to the absolute liberty of every man to follow any trade or pursuit he pleased. Even our apprentice system was intended rather to secure to boys a paternal protection, and the boy saw in his master a friend as well as an instructor. The great changes, however, were made by the introduction of labor-saving machinery, and by the accumulation of great capital in corporations and large establishments. These, in turn, brought about a revolution in the apprenticeship system which has not been beneficial, and the evil of which ought to be remedied by trade associations. Finally, we have the "unions," or associations, with which we are so familiar, and in them, with their regulations for mutual aid and protection, we see many of the elements that distinguished the guilds and trade unions of Europe long before the discovery of America. It is very satisfactory to recall how much good they have done in the past, and to contemplate how much they are capable of doing when kept free from dangerous entanglements. In recalling the history of their ancient prototypes, we hope that our modern American associations of mechanics will continue to keep in mind the advantages to be drawn from an improved and elevated standard of education, by making the very highest attainment the condition of success, and by enabling every boy who wishes to do so to join a trade, to master it thoroughly, and to pursue it freely whenever he finds it profitable.

The Benefits of Dear Coal.

The London *Spectator* says:

Coal is dear, and there will be some privation in consequence—women and children in particular will often suffer from inability to procure the necessary fuel—but we cannot mend matters by crying out against everybody. We must accept the situation, and make the best of it. And when we look into the subject closely, we shall find that that best is by no means so bad as it at first appears. There can be no doubt that things are mending. Coals are not quite so dear now as they were this time last year. The differenceis not much, but still it is on the right side. The high prices are producing their natural effect, and must in time produce a more distinct reaction. Not such a reaction as will bring prices back to their old level, for that is not to be desired. The prices of coal up to 1871 were exceptionally low. The country was suffering from the stagnation consequent upon the money panic of 1866, and unless we are to have another such paralysis of trade—which would spread indigence amongst the lower classes—we cannot hope to see prices quite so far down again. That would mean that not we only, but the world, as a whole, was standing still. If prices were suddenly to fall again so low as in 1869 and 70, or even 71, the misery of the country would probably be much greater than it is now. It must not be forgotten that if coal and food are dearer, wages are also in most cases higher, and the people consequently more able to bear the strain. There is less pauperism in the metropolis now than there was two years ago, when everything was cheap, and probably nothing will do the working classes really more good than a time of high prices following on great rises in wages. Most men are liable to become demoralized by easy circumstances, and the working-man, as the Excise returns have shown, is not exempt from the tendency. If, therefore, the demands for forethought and thrift are great this winter, the gain of the discipline may be greater than any material advantage could be.

But without pressing that point, it may be safely urged that the present course of high prices is working most beneficially for the ultimate good of the country. There is probably good ground for the fears that our coal measures are becoming rapidly exhausted, and, at all events, there can be no doubt that had our coal and iron continued cheap, the demand upon our resources in both would have gone on growing with alarming rapidity. We have been the source of supply for all the world almost up to now. But now a change is working, and a most beneficial one, which needs a continuance of high prices here in order to produce effective results. The consequence of these high prices is that the world is no longer looking merely to us for coal. Each nation is looking at home, and begining to search for its own hid treasures. Germany is alive to her interests in this respect, and so are the United States. It is absurd, by the way, for Professer Leone Levi to talk, as he did the other day, of America not having a "genius" for mining. If mining pays, the "genius" will doubtless be forthcoming to any needful degree. And if America learns to rely upon stores nearer home to some extent for her supply of fuel and iron, it will be a great thing gained for us and the world. So also with the East. High prices will stimulate commerce to find cheaper means of coaling its vessels than by coals from Staffordshire or Wales. China and Japan have mines and miners, too, if they were but properly opened and properly worked, and the high prices now ruling are just the kind of stimulus necessary to make men find the way to work them. We have nothing whatever to fear from such a development, but everything to gain. It is only the selfish policy such as a heavy prohibitive duty represents which would make us losers by the riches of our neighbors. Suppose the clamor for protection had been listened to, and a duty put upon coals sufficiently high to prevent exportation—and short of that, it would have been but a useless irritant, the high prices themselves acting as a potent enough check—what would have been the result? Simply that we should virtually have been supplanted in the carrying trade of the world, without being a whit better for it. Only some ten per cent. of the total out-put of coal is exported, and most of that is for purposes connected more or less closely with our own trade, now carried on to an enormous extent in steam vessels. And if we had prohibited that coal from going out of the country to the various coaling stations, we should have stopped our own commerce. Bread is dear, but in such a case it must have been dearer, for there would have been an insufficiency of vessels to bring the wheat from other lands to our granaries. But unless we stopped the export of iron also, a duty on coal could do no good; and if that had been done, whole industries would have languished and died, while other nations seized the opportunity to supplant us for ever. In the advancement of nations, a step lost can rarely be recovered, and such a course must have left us too far behind to be able to beat up again, when poverty and misery had awakened us to a sense of our folly.

But the case is altogether different, if we suffer things to take their natural course. The high prices are undoubtedly due to natural and easily explained causes—a great expansion of trade and enterprise—whereby they are so driven up as to slowly contract that trade. But if the trade be sound, when such a rise checks growth in one place, the impetus does not really die out; it passes on to develop a like growth among other peoples. What we cannot now do, another does, but we are not made poorer thereby; rather richer, for our wealth does not consist in another's poverty. The more America, for instance, can develop her natural resources, the more she will have to spend; and if she cease to buy one thing from us, she will have a larger demand for another. While our coal and iron last, we cannot be driven altogether out of the market; and it, at the same time, is probably neither for our good nor the world's that we should any longer monopolize the supply of these articles. Certainly the present "coal famine," as it is somewhat sensationally called, is the best thing that could have happened for the conservation of our coal measures, for it will probably lead to greater economy at home, and will certainly restrict demand from abroad. The one result will prevent waste and the speedy crippling of our energies, and the other cannot permanently affect our trade. These two things acting together are therefore the only real cure for the present evil, and it is only by their action that prices can again come down, unless indeed trade languish to a degree that would produce a national calamity.

Modern Tunneling.—In the Economy and Statistics Department of the British Association, Mr. C. Bergeron (Lausanne, Switzerland), gave a description of the works connected with the St. Gothard Tunnel, the contractors for which are under heavy penalties to complete it in nine years, and which will be more than two miles longer than the Mont Cenis Tunnel. The drills used were those of Messrs. Dubois & Francois, and were made at Seraing. These machines were worked with compressed air at five atmospheres. Dynamite was used for blasting, but the process was very slow. He had heard that the Americans were going to construct a tunnel eleven miles in length in five years, and he supposed they would use some more improved means. He had seen machines for boring holes three feet or four feet in diameter, the blows being struck with a force of eight or ten tons. He thought that probably some adaptation of the steam hammer, mounted on trunnions like a cannon, would be invented, which would smash the rocks and supersede blasting entirely. Sir John Hawkshaw said the subject of cutting or boring through rock was one of great importance at this moment, because the age was apparently going to be one of long tunnels, tunnels which, until recently, were never dreamed of. The author of the paper had spoken of hammering machines, but at present he could not see any other way of cutting except by boring by such a machine as that which was brought under the section on Monday, Burleigh's boring machine, which he had inspected that morning, and which seemed an admirable machine for boring hard rock. Of course this system necessitated blasting, and the great evils connected with it. He was inclined to think, however, that with a little more care and attention in cutting round the circumference, some of the evils of blasting might be avoided, although there would always be danger and difficulty. The system mentioned by the author of the paper seemed to him not only too expensive but going back to brute force, and not depending upon mechanical skill.

In a recent article treating of the resistance to fire offered by the various kinds of stone used in building, Dr. Adolf Ott asserts that the presence of magnesia in limestone (magnesian limestone, dolomite) hastens the decomposition of the mass under the action of heat, the magnesia parting with its carbonic acid at the comparatively low temperature of 600° Fah. Common limestone will stand a higher temperature without decomposition. As our Westchester and also Vermont marble is a magnesian limestone, this fact is of very considerable interest to this city. It appears that in Chicago, and probably also in Boston, the sandstones made the most obstinate resistance to the heat. This is explained by the fact that the chief ingredient in stones of that class is quartz, a substance remarkable for its infusibility. As for granite, gneiss, mica-slate, and other rocks of the primary formation, which are commonly esteemed indestructible, Dr. Ott shows that they can make but feeble resistance to heat. The water enclosed in such rocks accounts for their bursting and exploding when heated. Portland cement stone is said to show extraordinary resistant power, almost equaling sandstone in this respect. Of brick walls the author is disposed to think well, provided they be honestly built of hard material throughout, and of the requisite degree of thickness.

The earliest known mention of "wire drawers" and "wire millers," as those who produce wire by drawing were variously called, occurs in the 13th century, in the histories respectively of Augsburg and Nuremberg. Previous to that time we have only accounts of "wire smiths," or those who fabricated wire with the hammer. For the making of iron wire the best and toughest wrought iron is selected. Formerly this iron was prepared for drawing by hammering it out into convenient rods of nearly a half inch thickness. These rods were then extended and further reduced by a machine in which a pair of pincers were made to advance to the draw-plate, seize the protruding end of the rod, and being moved back and drawing the metal thus far, to relax their hold, advance again to the plate and repeat the process. At the present time iron, and usually steel, are prepared for the final drawing by passing between grooved rollers very accurately made and adjusted. The sizes of wire are conveniently distinguished in commerce and in their employment, by naming the actual diameters, and more commonly by a set of numbers corresponding.

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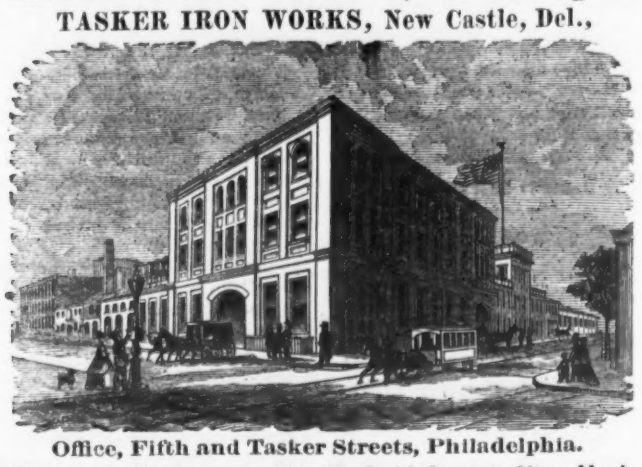

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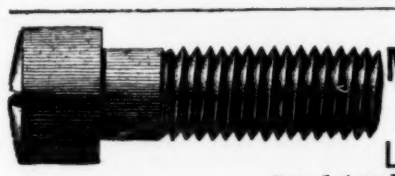

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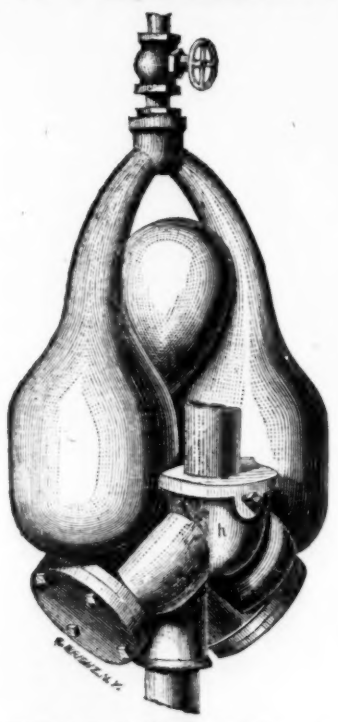

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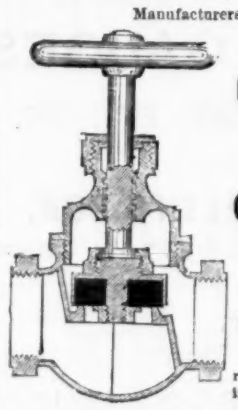

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The Paterson Iron Company will work 100 men through the winter. The Passaic Rolling Mill, Latimer Boiler Works, Watson Manufacturing Company, and McNab & Harlin Company are running on full time, and expect to continue so.

More than one-half of the men who were employed on the new shops of the Pennsylvania Railroad, on the west bank of the Hackensack, have been discharged.

The effects of the dull trade are felt very severely in Passaic. The large wire mill has suspended, and the steam engine works have reduced their working force.

The Paterson Locomotive and Machine Works shipped three engines Oct. 28, by the Erie Railway.

The Danforth Locomotive Works, in Paterson, will not be able to keep the present force employed longer than five weeks, and contemplate a gradual reduction of the force.

PENNSYLVANIA.

The Phœnixville Iron Company are erecting a new mill in that borough, of the following dimensions: 628 feet long, 288 feet wide, and 30 feet in hight to square. When we state that the building covers six and one-third acres of ground some idea of immensity may be had.

Chess, Smythe & Co., Pittsburgh, resumed operations in all departments some days ago, after having made some important repairs. New boilers have been put in, which are furnished with Perkins' surface blow, and altogether the works is in first-rate order.

The Wistar Furnace, at Harrisburgh, will not be started until the times shall have changed for the better. It has been idle for six or seven weeks.

The Glen Iron Company, of Allentown, intends turning their mill into a large nail manufactory, with a capital of $700,000.

Georgiana Furnace, two miles from Dauphin, Dauphin county, was blown in on the 24th ult., after being thoroughly repaired.

The Lehigh Valley Railroad Company has given orders that 200 men be discharged from the Packerton shops. One hundred and sixty men have thus far been sent off, and the remaining 40 will follow soon. Orders have also been issued to stop all new work not absolutely necessary to be completed at this time. One hundred and fifty men have been discharged from the several track repair gangs between Mauch Chunk and Easton.

The Co-operative Foundry Association, Beaver Falls, have been in operation since January, 1872. They make stove and hollow ware, both heating and cooking stoves, and castings, manufacture the Welcome cook stove, for coal or wood, and the Baker, also for coal or wood. In heating stoves they make the New Globe, Evening Star and Blinker, all base heaters for hard and soft coal. The association use 420 tons of iron per year and employ 30 hands.

It is reported that a Wheeling firm is about to establish a muck mill and nail works at Fountain Mills, the site of Everson, Graff & Macrum's sheet iron and bar mill, and Everson, Knap & Co.'s blast furnace.

The new rolling mill of the P. & R. R. R. Company, in Reading, has again resumed operations.

Moorhead & Co.'s blast furnaces, at Pittsburgh, have suspended operations, and it is thought the remainder of such furnaces in Pittsburgh and the Mahoning and Shenango Valley will follow suit. There are eight of these furnaces, employing about 10,000 men.

The Sligo Iron Works resumed operations some days ago, under the new regime, giving employment to a large number of hands.

The Phœnix Iron Company, Phœnixville, have been reducing wages. Boilers will receive $6 per ton, puddlers $5·50, and helpers' wages will be reduced 4 cents per heat. All other wages at the mills, blast furnaces and shops, as well as other labor, will be reduced 10 per cent. Where the daily earnings or wages are at present over $1·50 or less, the deduction will be 10 cents per day; but when less than $1, the deduction will be 5 cents per day.

MASSACHUSETTS.

F. B. Brewer has leased to Mix Bros. the shops, machinery, tools, patterns, patents, and good will of the Westfield Lock Works, and to Corbett Bro. & Co. the foundries, with all their appurtenances.

A. Hankey & Co., Rochdale, have increased their facilities, and are giving their attention largely to the manufacture of their newly patented short and reversed angle, diagonal bed plate, and rag cutting knives used in paper mills.

The Gold Medal Sewing Machine Company, at Orange, employ 100 hands, making 20,000 machines a year, of which about one-half are sent abroad. They make the "Gold Medal," the "Home" and the "Home Shuttle," the last being a cheap hand machine. The company operates two shops, one for wood and the other for iron work, and a foundry where they make their own castings.

Dilworth, Porter & Co., Pittsburgh, are now running their mill double turn.

OHIO.

About one hundred and twenty-five men have been thrown out of employment at Leetonia by one of the Grafton Iron Company's furnaces blowing out for repairs, owing to the disturbed condition of the market.

The blast furnace at Irondale is now idle, but it is thought it will be started again in a few months.

We learn from the *Ohio Valley News* that the nail machines, engines, and other fixtures of the Ohio City Iron and Nail Works, at Martin's Ferry, are being placed in position.

The new blast furnace at Columbus is about ready for operation.

A certificate for the incorporation of the Linndale Stove and Hollow Ware Manufacturing Company, with $500,000 capital, has been filed at Columbus.

Fuel Economy in Great Britain.

The prominent fact that the coal supply of the island of Great Britain has become so restricted that importation from this country is already talked of, and, as I am informed, for special industries, in a small way attempted, renders the whole matter of fuel for British furnaces a matter of much interest here. I do not propose, in this connection, to speak at any length upon the more prominent features of the case, but rather of those points which bear directly upon the extension of certain American mechanical triumphs to fields where their utility is greater than—for a long time, at least—they are likely to be here. Of such (aside from improvements in coal getting mechanism, in which the English so far transcend us in attempted plans, that our first lessons would necessarily be taken from them), are the economy of fuel, in which their innumerable inventions have failed to keep them in advance, while in the important matter of iron smelting an American improvement seems at present most in favor, and in the further utilization for fuel purposes, of peat, slack and petroleum.

The coal question in Great Britain is a complex one, a single phase being lately set forth in a recent lecture at Kings College on "The influence of the price of coal on the productive industry of the kingdom." According to this, the daily wage of colliers has risen from 4/11 in 1871 to 8/ in the present year, an increase of 62 per cent. This, on the face of it, would tend to the introduction of improved machinery, nor will this be lessened by the counter-truth that whereas the profit per ton of coal mined two years ago was seven pence it is now three shillings and sixpence, an increase of five hundred per cent. While from a positive standpoint, and this is that from which the capitalist will look, the price of labor has increased so as to make the substitution of machinery for manual labor an object, from a relative standpoint, that of the laborer, the rate of wages has receded, and a further reduction will be met by the fiercest opposition. Considering the turbulent, and not altogether unprovoked, condition of the British laboring classes, there is much reason to doubt whether, for a considerable period at least, coal getting machinery will even temporarily work any material amelioration of prices. But that mechanism of this class is capable of materially cheapening the work can scarcely be denied; neither can the proposition that the strong, elaborate, complex and costly design of most of the British apparatus could be profitably substituted by others showing the essentially American characteristics of cheapness, portability, and adaptability to circumstances and the meeting of unforeseen difficulties.

But none of these drawbacks can apply to measures or means looking to economy in the use of fuel or the substitution of cheaper for more costly kinds. According to Griffiths, *Iron Trade Review*, to reduce from the ore one ton of pig iron requires three tons of coal, and to bring the pig to the condition of wrought bar requires three tons and seven cwt. more. A narrow margin may be left for waste, and it is needless to descant upon the value of any improvement that will reduce the expenditure per ton of bar iron from six tons and a half of coal to any more reasonable figure. Of much value here, it would be worth four fold abroad. It may be remarked in this connection that English inventive skill has not been idle in the solution of this question. But most of it has been ill directed, the most efficient data as to what not to do may be found in the records of English experiment, and the way to success is as often found in the daring conceptions of speculative projects as in the imperfect application of practical skill. In steam power, from the combustion of coal, different from the subject just discussed, gain will be more certainly secured by the elaboration of principles already acknowledged, many of them originated by British mechanical engineers. The dust fuel furnace of Crampton is the type of a system by which some advantage may be gained, and in the utilization of slack much more may be learned from the French than from us. But with peat and petroleum the case is different. The former exists as a home product, but is prepared by the primitive method of turning up with the spade and drying by solar heat; the latter is imported in immense quantities, and its use as fuel undertaken, notably by Capt. Selwyn, in many industries with a technical but hardly with a pecuniary success—a condition that may be changed by the present high price of coal.

I have frequently expressed my opinion (more than once in *The Iron Age*) that the comparative utility of coke as a fuel has been much exaggerated. That it is worth more than one-half its weight of anthracite coal is disproved alike by practice and by the very nature of its components. But that with approved machinery, operated by the low-priced labor available abroad, a good substitute for the coal sold at 12/6 per ton could be made from peat, I certainly believe. A careful sifting of the American peat machines projected during the past dozen years would rapidly develop the means of bringing this about. As to the combustion of petroleum, our American improvements are as yet far from the acme of perfection; but such as they are, they furnish the germ of a class of apparatus the use of which in other countries may follow the lines of our export of this, the third, in point of aggregate value, of products sent from our shores.

To recapitulate, as the result of the present desultory reflections, I believe that the present coal famine in England opens a field for the introduction abroad of valuable American improvements in iron manufacture, peat preparation and petroleum furnaces, unparalleled even by the market undeniably existing for the same at home.

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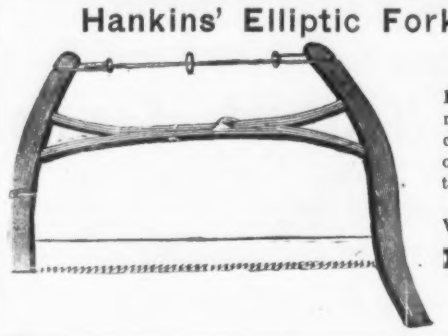

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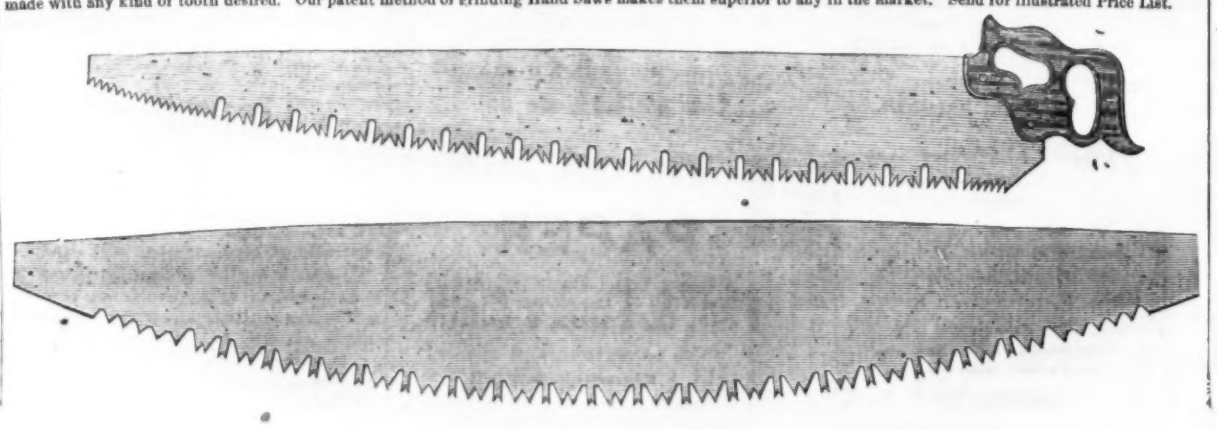

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Our leading papers, such as the *Tribune, American Agriculturist, Christian Union*, etc., have published over sixty editorial notices recommending these Saws. Farmer's Clubs, Lumbermen, and Hardware Dealers unite in pronouncing the genuine Lightning Saw the greatest labor-saving implement of the age.

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PHILADELPHIA CORRESPONDENCE.

PHILADELPHIA, Nov. 3, 1873.

There seems to be nothing to be gained by announcing from week to week the unpleasant facts that so many additional works have suspended operations, and so many hundred or thousand more operatives are without employment. Yet such, unfortunately, is the case, and must continue to be so for some time to come. From the blast furnaces down, or up, if the term be more appropriate, every branch of the iron industry is alike stagnated. Pittsburgh, which was among the last to yield to the force of circumstances, has been compelled to succumb. The Soho Furnaces have blown out, it is reported, and the Isabella, Lucy and Clinton are to follow. The Mahoning and Shenango valley furnaces have, as a rule, made little iron this year, and will soon all be cold, and so on to the end of the list. One feature of all this suspension of industry does not seem to be taken into account, which is, that an immense amount of currency must be somewhere lying idle, earning no interest, benefiting nobody. A careful exhibit of the capital necessary to carry on the amount of productive industry which has been suspended since the panic came, would show a sum which would be startling in its magnitude, and far beyond the amount asked for to be added to our currency by the most earnest of expansionists.

All this money must be accumulating, and before long, in the natural course of things, become so abundant as to seek investment. Goods will not be in any very large surplus, and the moment a demand comes all our factories and mines must start up. It is, however, to say the least, aggravating, when so many thousands are out of employment, to find the trade unions, or such of them as are left, threatening strikes if wages are reduced. Already the charitable and aid societies report themselves with bankrupt treasuries at the opening of winter with thousands of applications for aid. People of all classes who have means are warned that they must give freely to prevent starvation, misery and crime; the manufacturers are driven nearly wild to protect maturing paper and collect overdue debts, and still puddlers and mill men, and miners and bricklayers, and all the rest of the bone and sinew, are cooly discussing the question of striking. There is but one answer to such madness, which is to refuse aid in any form to those who have willfully refused work. Fortunately, most of the trades unions are bankrupt; still more fortunately, their members see that from their very formation they cannot be of service in times like these, and, best of all for laborer and employer, any resumption of work will be without the trammels of these injurious and inequitable institutions. But as in the muddle we are now in, the ablest financiers of ordinary times confess themselves unable to suggest relief, or predict, with any degree of certainty, the course of events for the future; so the labor question must right itself with the money question. The great danger, from present appearances, is that the utter variance in which men's theories run will make the coming session of Congress but a war between resumptionists of specie payments on the one hand, and the expansionists on the other.

A RIVAL TO BESSEMER.

There have been so many plans suggested to improve on, or substitute for, the Bessemer process of late years, that it would at first sight seem idle to report any new processes. A plan has, however, been exhibited here of late, which has undoubted merit and some possibilities of success. The inventor proposes, and has patented, a cheap and efficient application of the air blast to the iron as it runs from the blast furnace, or, if preferred, from a cupola furnace. At first it was proposed to claim only a partial decarbonization of the iron, but results and theory show that the total decarbonization may be made. The process is difficult of description without a diagram, but I will attempt it as lucidly as possible. The plan proposes to attach to the blast or cupola furnace a pipe leading from, and attachable to, the tap hole, whence the molten iron is conveyed over a series of planes or benches covered with fire clay and pierced with numerous openings of varied diameter, decreasing in size on each bench, and largest nearest the furnace. These benches extend each under the preceding one for one-half its length, and diagonally through the terraced air spaces formed thereby runs a pipe conveying heated air from the hot blast oven or other combustion chamber for the purpose. This pipe is supplied with a separate valve to control the admission of air as desired. At the bottom of this flight of stairs or benches the metal may be conducted to the ordinary pig bed on the casting floor, as partially decarbonized pig, or received into a tank lined with fire clay and heated by waste products of combustion, entirely decarbonized, and then recarbonized to the desired point and cast into ingots. The theory is, that the iron falling in minute quantities through the sieve-like holes of the benches becomes thoroughly exposed to the oxidizing influence of the blast, acquires greater fluidity and passes over and through the second bench again, encountering blast and further oxidation, and is received in the tank from the last bench before it can have become pasty and "come to nature," while the additional advantage is attained of eliminating the silicon during the process. Claim is also made of dephosphorizing the metal to a greater extent than has ever been done by any like method, but this is not admissible without direct and continued evidence in demonstration. The main point is, granting the practicability of the process on a large scale, that it is inexpensive; a couple of thousand dollars or less being sufficient to erect the plant in connection with a blast furnace or cupola. Such an invention is at least worthy of trial on a large scale, and in any other season would, doubtless, find takers. The success met with in England with the iron coke process should make manufacturers willing to divest themselves of some, their former prejudices against new things, and induce more enterprise. It is certain that a furnace in Western Pennsylvania has found its account in making a partially decarbonized pig metal, made by means of admission of atmospheric air through the metal while casting, and this is an improvement and extension of the same idea. The Bessemer plant is certainly a fearfully expensive undertaking for the results obtained; the Martin process has not, thus far, accomplished what was hoped, and he who can give us a cheap metal akin to steel, with its many good qualities, deserves at least a patient hearing and a chance of trial.

THE NEW CABLE.

Great interest is felt here in the reported new Telegraph Cable Company, which it is said has been finally organized. This cable will, it is said, be laid in connection, on this side the water, with the wires of the Automatic Telegraph Company, and is backed by the Pennsylvania Railroad Company, as an antagonist to the Western Union, since the latter has passed into the hands of the Vanderbilt party. The cable company proper is formed in England, with £2,000,000 of capital, the American terminus being on Long Island. Most of it is already made, and the contracts for laying taken. The wires will follow the routes of the Erie, Baltimore & Ohio and Pennsylvania Railroads, the order for their extension along the latter having been issued by the officers of that road Independent of profit in the matter, it is said that the object of the railroad companies referred to in aiding it is to have a line free from espionage over their business messages.

JAPANESE CONNECTIONS.

The Japanese Minister, Mr. Otero, &c. &c., passed through here during the week, as the guest of a prominent iron manufacturer of this State, and has gone to visit the coal and iron regions of the Schuylkill and Lehigh, with a view to obtaining information of our manufactures, to be used in developing the minerals of Japan. He is an intelligent and, evidently, well-informed man, who is already pretty well posted on our industries, and in a brief conversation expressed himself strongly on the great importance of developing all the mineral wealth of his country, and introducing our methods of manufacture there. In these days of suspension he will, at least, find plenty of manufacturers with time to talk, if they cannot show him productive works.

OUR EXPORTS.

Slowly we are creeping up in our exports of some kinds of manufactured iron goods, though not in bars, the impossibility of which I will show at some future day by actual cost of production. The list of exports for this week includes two items of Philadelphia manufacture, which promise much for our future export trade, even if, like Secretary Richardson's $5 silver resumption, it is but a drop in the bucket now. These items were 1377 sewing machines, and 238 street car wheels, both of them articles which we can make better and cheaper than our English cousins.

A SUGGESTION.

Those who have read the extremely interesting letters of Prof. R. H. Thurston, in the *Scientific American*, during his late visit to Europe, will cordially join in the suggestion that he should be invited to deliver a series of lectures on the foreign iron and steel works and great machine shops he visited. Apart from his great scientific knowledge, Prof. Thurston has the happy faculty of being intensely practical, and of telling what he knows in an intelligent and instructive manner. He could give information of great practical value to our manufacturers, who would receive it at its real value from a man whose ability is so generally acknowledged.

OUR SHIPPING BUSINESS.

Those who bewail our declined mercantile marine should show their faith by their works, and may take heart of grace and gain lucre from the following item: A brig purchased by Philadelphia parties one year ago for $12,500, has since realized for her owners $13,800, clear of all expenses and original investment of capital. Such a balance sheet in these days of protests and extension deserves notice.

Illinois & St. Louis Bridge.—A number of citizens of St. Louis having addressed a memorial to the President, asking that he would recall the Secretary of War's approval of the engineers' report on the bridge. An answer was returned stating that all that has been approved by the Secretary amounts simply to the reference of the whole matter to Congress. The tunnel which forms part of the western approach is progressing rapidly. It will be 4000 feet long, with a walled open cut 900 feet long at one end. The arches of the tunnel are 14 feet span, and it is 17 feet high in the center. The tunnel is double. The foundation walls, of stone, are six feet and the centre wall three feet thick. The arches are of brick.

Antiquaries have been of the opinion that the weapons and instruments of bronze found in Switzerland have been manufactured, not in that country, but beyond the Alps, and that they had been obtained thence by the Helvetians in the way of trade. Latterly, however, a few more have been discovered in France and Germany, and very recently Dr. Gros, of Neuville, has made a discovery in the course of researches at the lake station of Meyringen, a site remarkable for the quantity and excellent condition of bronzes which have been found. Here the Doctor has unearthed sundry highly interesting things, among which are crucible beds, channels for the overflowing metal and other matters, giving evidence than a foundry had existed on the spot, beside a large number of molds for the castings.

SCOTCH FIRE CLAY MANUFACTURE.

Mining and Pulverizing the Clay—How Fire Bricks, Sewage Pipe and Terra Cotta Wares are Made.

The art of working in clay dates from a very early period, and is divided into numerous branches, one of which, the production of good fire clay, has gradually and steadily risen to a position of great importance. Pure fire clays consists of silica and alumina, and are perfectly infusible in the strongest heats to which they may be exposed in furnaces; but all clays contain other properties. Various quantities of lime, magnesia, oxide of iron, etc., are usually in the composition of these clays; and where these impurities exceed 5 per cent. they act as fluxes, and render the clay liable to fuse at an intense heat.

Fire clays are found amongst the coal measures, and at the "outcrop" can be opened into workable condition at comparatively little expense. There are two general systems of working out the clay, namely, by "long wall" and "stoop and room;" the former is only applied where seams not exceeding three feet thick are found, and as most of the fire clays in Scotland vary from five feet upward, the latter system is more extensively adopted. It consists in driving passages in such a manner as to divide the clay into rectangular pillars or stoops, in this way as much being left as taken out, the usual size of stoops being from twenty feet to twenty five feet square, which supports the roof.

Fire clay presents the appearance of a species of rock, is very tenacious, and in loosening it in the mines a considerable quantity of blasting powder is used. It is taken in small "hutches" to the bottom of "dook," in pieces somewhat resembling rubble stones in size; these are drawn to the surface by means of an engine, and the clay deposited, which, with a few days' exposure to the atmosphere, becomes disintegrated, and, in consequence, is more easily ground. The first process in its manufacture is pulverizing in a dry state. This is effected by means of the "riddle mill," which consists of a circular iron pan, seven feet diameter, driven by a vertical shaft through its center. In this pan are two massive iron rollers, each weighing about three tons, fixed to a horizontal shaft working between slides at each extremity, the circular motion of the pan communicating the motion to the rollers. The fire clay is taken from the heap and thrown into this mill, scrapers being suspended from iron bars, and set at such an angle as to keep the rough clay continually before the rollers, these rising and falling according to the quantity put in, being guided in this by means of the slides already referred to. From the outer edge of the rollers to the inner rim of the pan are perforated plates, through which the clay falls after being reduced to a comparatively fine powder, and these plates being movable, finer or coarser ones can be substituted when necessary. The sifted clay falls in a ring, and attached to the bottom of the pan is a blade or scraper, which removes this clay every revolution, and lodges it into a recess from which it is taken by elevators to the pug mills and batching pans, to be brought up with water to the proper consistency for the production of the various articles to be manufactured either by hand or by machinery.

Pug mills are extensively used in most of the common brick fields, but generally fire clay works have, in addition, a circular iron pan fitted above, with rollers working in same; into this pan the clay is received from the elevators, and mixed with water in the first instance. The bottom of the pan is of very heavy plates, perforated, on which the rollers revolve in the same way as in the "riddle mill," and force the wet clay into the pug mill beneath. This pug mill is a very strong cylinder, cast perfectly true, and erected on a massive stone foundation with iron basement, is fitted up vertically, and stands about five feet high, and three feet diameter, widening at the top in bell mouth style to the diameter of the pan above. Inside is a vertical shaft passing through its center, to which a number of knives are fitted, set at angles, so that when it revolves the clay from the pan above is thoroughly tempered and gradually pressed to the bottom of cylinder, and forced out at the door on side, from whence it is conveyed to the makers. The batching pans are similar to those already described, with the exception of the bottoms being entirely close; these pans are used for producing finer qualities of clays, and rendering them more tenacious; they do not empty themselves, as in the case of the others, so that a greater amount of hand labor is brought to bear on this portion of the machinery.

Before adverting to the various processes of manufacture, we may remark that these are carried on in stoves, flues being underneath the floors about 20 in. deep and 14 in. broad, covered over with fire clay tiles, all these flues concentrating in one main leading direct to the chimney, regulated by dampers, so arranged that the heat can be retained on any particular part of the stove, and carried right through as required. The heating of these floors is effected by introducing the waste steam from the engine into the flues, by utilizing the heat from burning kilns in the same way, or by independent furnaces placed in the ends of the stove, and fired with dross, thus drying the material, and allowing manufacturers to continue their operations to the full extent in all seasons.

Bricks form one of the leading articles manufactured from clay. With the usual attendants, a good brick-maker can produce 5000 in ten hours, and there are instances where this number has been exceeded. Brick molds are made of wood and brass, and in many common brick fields iron molds are used exclusively. The mold is simply a box without top or bottom, and made in the proportion of an inch and a quarter to the foot larger than the brick required, which allows for shrinkage in the process of drying and burning. When made of wood, it is shod all round the edges with iron, to prevent it wearing down by the working of the striker; it is also frequently lined with brass, but when the latter is used it is much better to have the mold complete in the metal, and these are very much used, in consequence of the very fine edge which they impart to the brick. In the making of fire bricks there are two processes, namely, dry-stock and slop-molding, and each is accepted with equal favor, according to the accommodation or arrangement of the various works. More attendants are required by the former than the latter method, in consequence of which the brick maker can produce the greater quantity, but this is again contracted in the drying, as while the dry stock bricks are laid on the floor or edge, those made by the slop system are laid on flat and dried, and ready to be removed much more quickly. For the making of bricks by the latter system, the clay from the pug mill is deposited on one end of the molding table; fully as much as will form a brick being taken from this by the molder, he dexterously gives it rude shape, and dashing it into the mold, presses it down by hand, so that all corners are filled up; he then removes the superfluous clay by means of a wooden striker, which is thrown into a water box before him each time after using. The brick being now molded, a boy carries it away, mold and all, and empties it carefully on the floor on its flat, returns with the empty mold, and dips it in water ready again for the molder, who by this time has another brick in a second mold, which is taken off by the boy in the same way, and this is continued till the day's work is completed. The only difference between this process and "dry stock" is that in the latter the molder has a boy alongside of him, who in the first place forms a piece of clay approximate to the mold, which necessitates another boy on the opposite side for emptying it, and this is done on a thin board rather larger than the mold; the carrying-off boy then covers the upper slide with another similar board, and, gently laying it on edge on the floor, slides the boards off, and returns with them to continue the operation. These bricks, after remaining on the stove floors for twenty-four hours, are sufficiently dry to be removed to the kilns to be burned, about 25 per cent. of their weight as molded having been evaporated; any less water than this being thrown off would have the tendency of causing the bricks to crack and split when the extra heat of firing in close kilns was applied.

Pressed bricks are prepared by taking the ordinary bricks when partially dry and putting them through a pressing machine, of which there are various constructions. A very simple and effective machine, and one very much in use, consists of a cast iron mold the size of the brick, fitted into a very strong iron frame; this mold is let down the inside of framing by means of an eccentric, which allows the brick to be put in on a flat sole, level with the top of the same mold. A handle is attached to this eccentric, which, on being drawn, lifts the iron box, or mold, which encloses the brick. It is then compressed by the action of a very powerful lever, wrought by hand, which is attached to the piston in connection with the sole plate on which the brick was at first placed; the pressure is thus communicated by this lever forcing up the sole plate, causing the brick to be fixed between it and a die suspended from the upper part of the machine by two strong bolts. This being accomplished, the lever and eccentric are allowed to take their original vertical position till the pressed brick is removed and replaced by another. Bricks pressed in this way are of denser texture, require more care and time in drying, but when properly prepared take a beautiful finish, and are much used for facing buildings. There are many varieties of bricks, but the process of manufacture being similar to what has been sketched, it is unnecessary to enter into further details, so that we may now follow the dried bricks to the kiln. Kilns are of various constuctions, and differ very considerably in their dimensions.

Those in general favor in the majority of fire clay works are termed "Newcastle" kilns, and are found to be the most economical open kilns in use. They are usually fitted up in stacks of four or six, all parallel to one another, each measuring about 16 ft. long, 12 ft. wide, and 10 ft. high. The entrance is from the end at which they are fired, and the door being built up with loose bricks after the kiln is filled, it is then used as a firing port; or the door may be in the opposite end, and simply built up with loose bricks and plastered over. In placing so many kilns together the one acts as a support to the other, so that only the outside walls on each side of the "stack" require buttresses, which are of considerable weight, and in many cases built the full length of the kilns, so as to have the greater effect in counteracting the lifting caused by expansion when they are on full fire. In the back wall of each kiln are three ports or flues leading into one main flue outside, communicating with a very large chimney, which works the whole "stack," each kiln being regulated by dampers in connection with their respective flues, so that each or all can be in operation at the same time without the one in any way interfering with the other. In the double kilns on this principle the only difference in arrangement is that they have independent chimneys of smaller dimensions, with two to each kiln, placed respectively on the sides, each chimney being connected to the interior with two flues (one on each side), which work the whole. In the setting of the kilns a great deal depends, and for this purpose very experienced workmen are required. There being no flue or riddle to the last description of kilns, the bottom is levelled over with fine loose sand, on which dried bricks are laid down on edge a little apart from each other; these are set two deep, and form numerous narrow flues running into a cross flue at back of kiln, which communicates with the flue ports already noticed, so that these bricks, while forming the flues, are burned at the same time. Across them another brick is placed, and the setting continued till the kiln is filled, generally header and stretcher. At works where a miscellaneous trade is carried on, a very great variety of articles are burned at the same time, but in all cases the floor is covered with bricks, as described; paving tiles, flue covers, copings, &c., all starting from the top of the third course of bricks, and arranged in such a manner as to give a proper draught, and allow the heat to be equally diffused through the kiln, thus contributing, to a great extent, to the economical application of fuel, which is a very important desideratum. On each side of the door, formed into a firing port, is another firing port, into all of which the fire is introduced, and the loose bricks are plastered over with wet clay to prevent the ingress of cold air. After a kiln has been lighted the firing must be brought on very gradually, to prevent the material from cracking or spilting, which occupies from 48 to 60 hours. The heat being all introduced from the front of the kiln, the materials immediately adjoining must of necessity be burned before those at the other end; but to prevent any overheating port holes are open to admit cold air in front, which not only neutralizes the effect of the heat at that particular part, but urges it backward, the firemen being guided by several small openings at the top of the arch, through which they can observe the progress of the firing from time to time, so that the contents of the kiln may be of uniform hardness when this operation is completed. The cooling process then follows, which takes about three days. This must also be carried out very gradually, as a sudden ingress of cold air upon the material at this stage would have a similar effect to that of heat impinging suddenly upon the raw material. Attempts have been made to cool down kilns more speedily by introducing heated air with fanners, and gradually reducing the temperature; but this has not been found to be advantageous, greater attention having been given to utilize the surplus heat, by introducing it into stoves for drying purposes, or by arranging the kilns so that it may be conveyed to another kiln in its first stage, and in both there has been a considerable amount of success.

To the manufacture of the heavier materials has been added within the last 30 years another branch of very great importance—namely, the manufacture of glazed sewerage and water pipes. The improvements in machinery whereby these pipes can be manufactured at a considerable reduction from their original cost, their anticorrosive properties, and complete freedom from the action of acids, render them (unless where very great pressure is required) preferable either to lead or iron. These pipes are made from 2 in. to 3 ft. diameter. One of the machines used in their production consists of a cylinder, with a vertical shaft through its center fitted with knives, fixed on heavy logs, supported by massive iron columns, the bottom of which is generally about 4 ft. from the floor. It is perfectly open throughout, and about 4 ft. long, placed vertically. Across the top is fixed a strong cast iron bracket, in the form of an arch, so as to allow full clearance for supplying the machine with clay; this being the main bracket, a thrush bush is used, grooves being about 1 in. broad, corresponding to collars of same size in the vertical shaft, which forms the main bearing; the shaft extends about 3 ft. higher, at which extremity it is supported by another bracket carried out from the wall, so that the whole working is effected with these two bushes. The cylinder has a flange on the bottom side about 2 inches broad, to which the "dies" are bolted; the "dods" in the center of these "dies" being respectively the interior diameter of the pipe required, with the shrinkage added, while the space through which the clay is pressed gives the thickness. On each side of the machine is fixed an iron rod, and these rods act as guides for a carriage, on which a board is placed to receive the pipe; this carriage being suspended by chains attached over pulleys to heavy weights, is forced down these rods by the pipe, when being pressed out, and the required length being gained, the cutting apparatus, which is attached by a frame parallel to the bottom of die, is brought into operation, when a thin wire is drawn across. The board with this pipe is then carried away, the weights take up the carriage to its original position, and the same operations are continued. The pipes being thus got as plain cylinders, they are then threaded to form the spigot ends, and the other ends roughed to receive the faucets, which, during this operation, are being prepared by another set of hands from molds of plaster of Paris. The next operation is the fixing on of the faucets, and particular attention must be given to see that both are of uniform stiffness, as, if not, unequal shrinkage would take place, and the clay joining all round would have a tendency to crack. The roughest end of the pipe is now covered over with "slip" of soft clay by a boy, the faucet, which has also been roughed on the underside, is put on level, and the workman with a board gives it a "tap," while a third works on the shoulder, which joins the two completely; the pipes then remain 12 hours, when they are sufficiently dry to be handled and wrought upon, without in any way affecting their form. The superfluous clay at the joining inside of pipe is then cut out with a knife by one of the men, while others follow with pieces of fine leather to smooth the whole surface, after which they are set aside another day to be thoroughly dried before being taken to the kilns to be burned. In this department it will be observed that division of labor is most extensively adopted, as independent of the five hands attending the machine, other 10 hands contribute each a part before a pipe can be said to be finished in the store. "Spencer's" patent is another machine of this class, the special object of which is to make the pipe with faucet attached. The kilns in which this class of material is burned are chiefly on the "Newcastle" principle, both single and double, although a good many round kilns are still in use and work well.

A very good size of kiln measures 24 ft. long by 13 ft. wide, from which take off the length about 6 ft., for the firing ports and wall in front, there is left 18 ft. available to receive the goods, which are taken in by a door in side or end. In filling these kilns small rolls or rings of clay are laid on the floor, on which the first tier of pipes is set; a second tier is set above these, steadied by small pieces of clay put into faucets, and the third tier is set into the second, this being carried on till the kiln is about two-thirds filled, after which only two tiers of pipes are set, so as to keep all safe from the sudden action of the flame. This space, however, is not altogether lost, as stable bricks and other material not so liable to be damaged generally occupy the front of the kilns. When filled, the door is built up and plastered over as in the others, and, the fires being lighted, the process of slow firing and full firing is carried out, but the latter is brought up to a more intense heat for the purpose of glazing. This consists of a quantity of the chloride of sodium, or common salt, being thrown into the fires at their greatest temperature, which is vaporized, and, combining with the silicious particles of the clay, forms a uniform and durable vitreous coating, the flues in these kilns drawing the vapor down through each pipe, so that the interior, as well as the exterior surface, is thoroughly glazed, and it is this which gives to bricks for the paving of stables, courts, footpaths, etc., that degree of hardness and durability which, combined with their cleanliness and non-absorbent properties, reccommend them as the most economical materials for the purposes to which they are now most extensively applied.

Terra cotta is another branch of these manufactures, which at the present day is prosecuted with greater enterprise than hitherto. To estimate the shrinkage which any design will undergo from being formed in a plastic state to its being turned out thoroughly burned is one of the great difficulties attending this department, and when great exactness is required, burnt clay, after being reduced to a fine powder, is mixed in a certain proportion with the raw clay to diminish the shrinkage to the utmost. Many compositions are used in the production of it; for instance, in various parts of England the natural clays are mixed with varied proportions of kaolin or China clay, Cornish stone, ground flint, etc., to make up a durable substance, and this composition is held to produce very fine work. Terra cottas are made in various colors, so that when required for the replacing of decayed stones, the tints of the two may be exactly similar. The color is frequently merely washed on the surface, but in these cases the slightest chip or abrasion reveals a different shade, which is most objectionable, and it is, therefore, necessary that the color penetrate the whole substance. To effect this the coloring ingredient is added when the clay is in a dry state and properly mixed; it then goes through the batching pans, where water is applied to render it plastic, to be operated upon by the workmen. An endless variety of patterns are to be found in all departments of architecture, and the greater portion is wrought from plaster of Paris molds by hand. The numerous designs in plain and ornamental chimney tops, so as to be in conformity with the style of the various buildings erected, form, themselves, a very extensive stock. Other architectural work, such as balustrading, columns, capitals, cornices, etc., and the more highly ornamental, such as fountains, vases, garden ornaments and decorations, all go to swell the list of manufactures from fire clay. A class of work to which the highest skilled labor is applied is in the production of statuary, and, from the variety of processes through which it has to pass, it will be inferred that very great expense attends it. The first and most important part is to select an artist of undoubted skill, thoroughly acquainted with the plastic substance in which his design is to be cast, who completes the model; plaster of Paris is then made up to the consistency of cream, and poured uniformly over the whole surface to such a thickness as to give it a proper substance, and in this are placed small iron rods, which act as ties and give strength to the mold; the plaster of Paris now stands sufficiently long till it sets, and, speedily attainining a firmness, it is inverted, and the subject taken from it. The artist then examines the whole very carefully, touching up with a small tool any imperfection, after which it is put on the stove for a day or so to be properly hardened before the mold can be said to be completed. These molds in various subjects are very intricate, and consist of numerous parts, which are fitted together. The clay for this is specially prepared, and partakes, to a great extent, of the same process as in China ware in potteries. For this preparation a "slip-plate" is used (which is simply a fire clay trough of considerable length), under which runs a flue, heated by means of a furnace at one end. The ground clay being soaked in water is put through a very fine lawn sieve into this "slip-plate," and is heated by the furnace up to boiling temperature, and continued until as much water is evaporated as will render the clay of a consistency fit for use. It is then taken out and thoroughly beaten and kneaded by hand to drive out the air, and, this being completed, it is taken to the molder. This very fine clay is now firmly pressed by hand into all parts of the mold, and these parts are all fixed together and properly jointed. To the clay has thus been imparted an exact outline of the design, which remains in the mold two days or so, until a degree of stiffness has been acquired, after which the various pieces of the mold are carefully removed. The superfluous clay at the joinings is now pared off with a knife, and the whole figure undergoes a process of very fine finishing, which is a special branch requiring very experienced and artistic workmen; and, in order to prevent sinking or twisting in those figures and designs that have the top part heavier than the lower, it is frequently necessary to provide supports at this stage of the manufacture. Statues, fountains, and other similar productions on a large scale, where no duplicate is required after being modelled, are taken direct to the kiln and fired, retaining unimpaired the last touches of the artist.

The kilns in which the finer classes of terra cotta is burned are termed "muffled" kilns, from their being constructed with a casing (a brick thick), inside of which all the goods are placed, thus being thoroughly protected from the flame. A space about four and a half inches between this casing and the outside wall is where the fire operates, in the same way as an oven. The extra expense in heating up this description of kiln is very considerable, but there is not the risk of beatifully finished figures or designs turning out after being burned with scorched surfaces, as occasionally occurs in the open kilns, and while casing only allows the heat to be brought up very gently, the highest degree of white heat necessary can be raised, so that there is not the slightest danger of any class of ornamental goods made from fire clay, when properly burned, giving way under exposure to the most severe weather.

Fire clay works in Scotland are carried on chiefly in the counties of Edinburgh, Fife Clackmannan, Lanark, Renfrew and Ayr.

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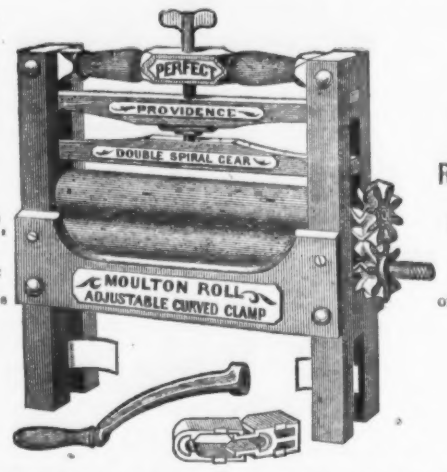

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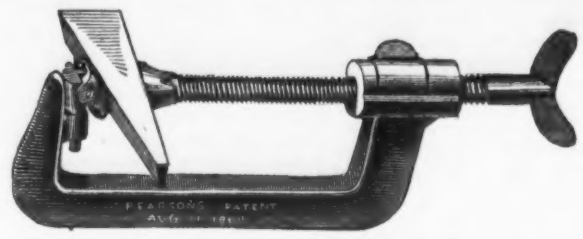

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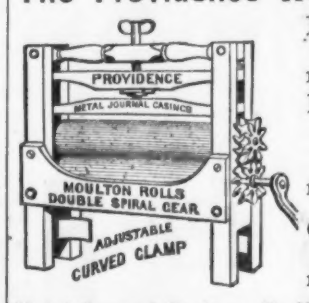

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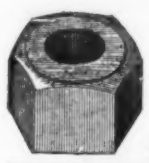

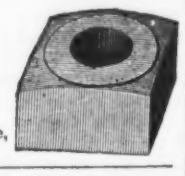

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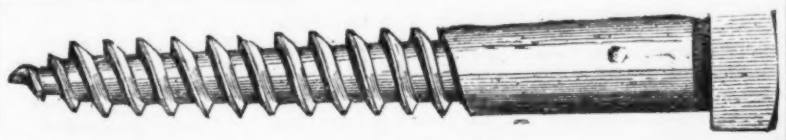

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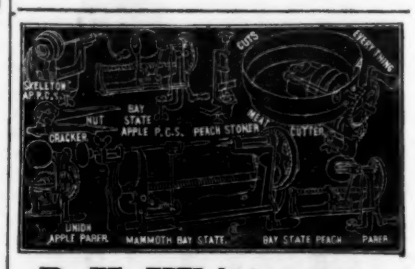

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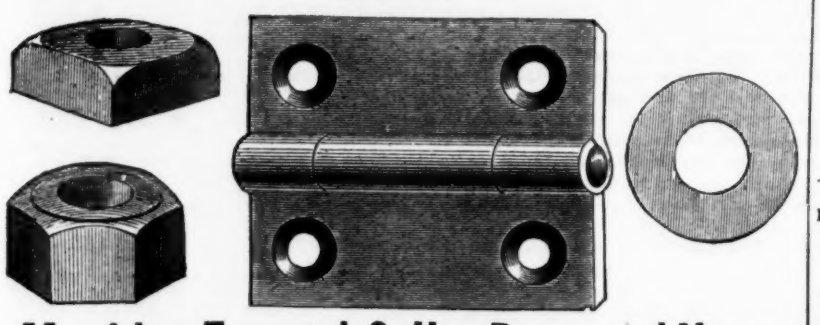

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KRUPP'S Locomotive Tyres.
EAGLE Files.

ARMS, BELL & CO.,

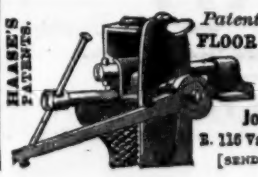
Manufacturers of

Carriage, Tire & Square Head Bolts.

Cold Pressed Nuts and Washers, Etc.,
YOUNGSTOWN, OHIO.

Price lists sent on application.

HAASE'S PATENTS.



Patents. Hose Shield,
FLOOR & DOOR CLAMP,
And Eight Sizes
Ratchets.

John A. Haase,
R. 116 Vanhorn St. Phila. Pa.
[SEND FOR CIRCULARS.]

THE NICHOLSON FILE.

All Nicholson Files are cut with the Patent *Increment Cut*, an invention owned and controled exclusively by us, the file cut in this manner being Patented as a new article of manufacture, and differs from all other machine cut files (all of which have their teeth cut with equal spaces) by being cut with teeth slightly *expanding or increasing in size and space from the point*, thus avoiding the too great regularity of teeth common to all other machine cut files. The tendency of all cutting tools with teeth or cutters placed at regular distances from each other may be illustrated (to the machinist at least) by the fluted reamer—as it is well known that if a round reamer be made with (say 12) teeth whose spaces are equidistant, the hole reamed will *not* be round and smooth, but will approximate to a hexagon in shape. Whereas, if the same number of teeth be made of irregular distances, the hole reamed will be both round and smooth. The same is true of a file, hence the necessity of its having teeth at unequal distances, and to which we have applied the name of Increment Cut File, which possesses all the advantages of hand cut work, and the accuracy and uniformity of machine work. It is now upwards of seven years since this File was introduced to the public, and the demand has increased until our production is undoubtedly treble that of any File manufactory in the country.

We put all files under seven inches in boxes of either one-half or one dozen each. These boxes are neatly arranged, and open on the end, on which the kind is plainly marked with printed labels, acknowledged improvements on the old methods.

The "*Increment File*" is not an experiment, but an established fact, and already has acquired a legitimate demand for upwards of 500 dozen per day. We employ no *regular Travelers*, but our goods may now be found in the hands of the principal jobbers and dealers throughout the country.

Prices and terms will be forwarded on application to

NICHOLSON FILE COMPANY,
Providence, R. I.

CAUTION.

It has just come to our knowledge that certain parties in the West are engaged in buying up WORN OUT FILES of our manufacture, and, after immersing them in an acid bath, selling the same in packages which have a label of the same color and general appearance as ours, and falsely stating as follows:

NICHOLSON FILES,

Providence, R. I.

Increment Cut.

Made from Best English Steel, &c.

Our friends and the public are cautioned against this deception, which we consider one of a most injurious character, not only to ourselves, but to all dealers and consumers who desire the

"NICHOLSON" FILES

as we produce them, as files so treated are comparatively valueless for use.

We have taken steps to have the parties thus engaged in deceiving the public, and trading upon our reputation, presented to the Courts for treatment, and will thank our friends having information bearing upon this subject to notify us, promptly, of any parties who have sold, or are offering for sale, "Nicholson" files doctored and labeled as above described.

Nicholson File Co.,

W. T. Nicholson, Agent.

Providence, R. I., Sept. 25th, 1873.

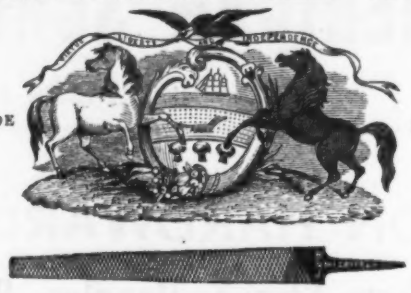
All packages of NICHOLSON FILES leaving our works bear a label on green paper like the one herewith attached.

HURD'S AXES TOOLS

HURD'S RAZOR BLADE AXES
MANUFACTURED FROM THE BEST ENGLISH EXTRA CAST STEEL BY THE JOHNSONVILLE AXE MFG. CO.

LANE, GALE & CO.
TROY, N.Y.

PENNSYLVANIA FILE WORKS.

TRADE  MARK

McCAFFREY & BROTHER,
Manufacturers of FIRST QUALITY FILES and RASPS ONLY,
Nos. 1732 & 1734 North Fourth Street, Philadelphia, Pa.

G. W. Bradley's Edge Tools.

Butchers' Cleavers,	Axes and Hatchets,
Bush Hooks, all patterns,	Grub, Garden & Planters' Hoes,
Turpentine Tools, all kinds,	Mill Picks, Mattocks & Picks
Coopers' Tools, a specialty,	Box Scrapers & Chisels,
Ship Carpenters' Tools,	Cotton Hooks & Samplers.

N. WHEED. 37 Chambers St.

FERNALD & SISE,

100 Chambers Street, NEW YORK,
HARDWARE MANUFACTURERS' AGENTS,
REPRESENT:

Reading Hardware Co.	Barnes & Deitz.	Underhill Edge Tool Co.
Crooke & Co.	Nashua Lock Co.	Plumb, Burdict & Barnard.
Yerkes & Plumb.	Arcade File Works.	Hotchkiss, Tuttle & Co.
Hartje, Wiley & Co.	William McNiece.	Klein, Logan & Co.
Vulcan Horse Nail Co.	Langstroth & Crane.	T. T. Rhodes.
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MANUFACTURERS, IMPORTERS AND DEALERS IN

Hardware and Upholsterers' Brass Goods.

SOLE AGENTS FOR

L. L. Davis' Patent Levels, Stevens' Calipers and Dividers, Page's Auxiliary Jaws.

Manufacturers of Judds', Prindle's and Combination Patent Curtain Fixtures, Locks and Curtis' Patent Raisin Seeder, Patent Twine Boxes, Picture Nails and Hooks, Escutcheon Pins, Coat and Hat Hooks; also Miscellaneous Iron and Brass Goods.

Small Brass and Iron Castings made to order.
64 Duane Street, NEW YORK.

JAMES C. HAND & CO.

COMMISSION MERCHANTS,

No. 614 & 616 Market Street, **PHILADELPHIA.**

AGENTS FOR:

William Penn, Reading and Norristown Pig Iron.
Reading Iron Co.'s (Crescent Brand) Nails, Boiler Flues, &c.
Bar Iron, Plow Steel and Iron, South Easton Iron Wire.
Wm. Jessop & Sons' Steel and Norway Nail Rods.
Barrows, Savery & Co.'s Hollow Ware Castings, &c.
Fisher & Norris' "Eagle" Anvils and Vises.
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Heavy Hardware, &c., &c.

W. F. SHATTUCK & CO.,

113 Chambers and 95 Reade Street, New York.

MANUFACTURERS OF AMERICAN HARDWARE.

Coes & Taft's Pat. Wrenches.	Mouse Traps. Wire Selves.	Yaw's Cow Bells.
Axe, Pick, Sledge & Hammer Handles.	Scale Beams.	Axes, Picks and Hatchets.
Hatchet, Auger, Chisel & File Handles.	Patent Tap Borers.	Hammers. Crow Bars.
Mallets. Pat. Boot Jacks.	Tool Chests.	Sad Irons.
Gimlets and Gimlet Bits.	Climax Horse Collars.	Boring Machines.
Augers and Auger Bits.	Brundage Horse Nails.	Cast Iron Hatchets.
Cocoa Nut Dippers.	Maguire's W't Iron Goods.	Coffee Mills.
	Shattuck's Platform Counter Scales.	Star Steel Spoons.
		Stocks and Dies.

1816.	1844.	1850.	1868.
H. F. F.	H. F. F. & SON.	P. A. F.	P. A. F. & CO

PETER A. FRASSE & CO.,

95 Fulton Street, New York,

IMPORTERS OF

Stubs' Steel Wire, Files and Tools,

Grobet Swiss Files,

Extra Quality English Spring Steel Wire,

Nos. 1 to 34.

Steel Wire for Sewing Machine Needles and for other Purposes,

French Cold Rolled Sheet Steel,

Sizes, 22 to 36 Gauge.

Jewelers', Engravers' & Mechanics' Tools.

The only Agents in the United States for

HUBERT'S CELEBRATED FRENCH EMERY PAPER.
For Hatters' and Machinists' Use.

Black Diamond File Works.

G. & H. BARNETT, 39 41 & 43 Richmond St. Phila.

CAUTION.

We learn that certain parties are making and selling **Second quality and inferior** Planes stamped, **"A.C. Bartlett's Ohio Planes."** There is no such manufacturer of planes. The object is obvious, as our planes have been known as **OHIO** planes for the past 25 years. First quality planes of our make are stamped **OHIO TOOL CO.,**
September 17, 1873. **COLUMBUS.**

F. G. HOLTON & CO.,

MANUFACTURERS' AGENTS

AND DEALERS IN

Hardware Specialties,

124 Walnut St., Cincinnati, O.

Branch Warehouse for W. & B. Douglas' Pumps and Yale Lock Manufacturing Co.

REPRESENTING

Star Tool Co.,	Schweitzer Mfg. Co.
Maltby, Curtis & Co.,	Lakin Mfg. Co.,
Woods Cutlery Co.,	R. E. Dietz.
Phillips Mfg. Co.,	Houchin Mfg. Co.

Eastern prices guaranteed. Orders solicited.

GEO. W. BRUCE,

No. 1 Platt Street,
Continues to import
Nettlefold & Chamberlain's,
IRON AND BRASS SCREWS, AND WIRE GOODS, RIVETS, &c.,
and assures the trade that his stock, assortment and prices are not equaled by any other parties, whatever their pretentions. NEW YORK, April 1st, 1873.

Health and Comfort in House Building.

Dr. John Hayward, Vice-President of the Liverpool Architectural and Archæological Society, lately read a paper on Health and Comfort in House Building, before the Royal Institute of British Architects, which merits attention.

Dr. Hayward lays down eighteen conditions in house building as absolutely necessary in a sanitary and medical point of view, some of the more important of which are due exposure to fresh air and sunlight, positive freedom from damp, a large cubic space for air, and abundant means for the escape of the foul and the admission of fresh air. He shows also that it is essential that the air should be warmed previous to admission. Indeed, he maintains that ventilation is the great and main necessity of house building; that whatever be left undone that should be specially attended to; and as in this country, owing to the nature of the climate, doors and windows can rarely be left open in the day and never by night with safety to health, it is necessary to provide specially for ventilation. And first as to the temperature of the admitted air. No contrivance that communicates directly with out-of-doors air, he considers, can possibly answer in a country like ours. This is especially the case as respects bedrooms, which are often very improperly constructed and arranged, so that the sick occupant has to be in winter in a current of air passing between the doorway and the fireplace, from 28° to 35° in temperature, while the temperature of his body is 98° or 99°. To this, in ninety-nine cases out of a hundred, patients in this country are exposed, and the evil is intensified when the bed has to stand between the fire and window, and the beating draught is with the out-door air. To these unpropitious bedrooms Dr. Hayward holds may be traced very many cases of consumption, bronchitis and asthma. In fever cases much fresh air is required, and sometimes endeavor is made to obtain it even by opening the doors and windows, so that many typus fever patients die of pneumonia, and many rheumatic fever cases are prolonged and complicated; and with all their knowledge and care medical men cannot prevent these evils, because of the defective construction of bedrooms and even of hospital wards. And it is not only patients in acute diseases who suffer from these imperfect architectural arrangements. Most persons occasionally take cold, and in the majority of instances the cold falls on the respiratory organs, as influenza, sore throat, or bronchitis, when the temperature of the air respired affects very materially the progress of the case, whether it shall be mild or severe, whether it shall be curable or fatal. In acute bronchitis the temperature of the air respired should never be lower than 65°; but how is it possible to obtain this temperature in ordinary bedrooms in winter, when bronchitis is most prevalent? And even when it is obtained by well-fitting windows and doors and large fires, matters are not much better, for the very means taken to obtain warmth exclude fresh air, and subject the patient and his attendants to the evils of foul air. And draughts are equally pernicious in sitting rooms, where persons may be roasted on one side and frozen on the other, resulting in neuralgia, rheumatism, colds, coughs, asthma, consumption, and a long train of cognate human ills, and the chilly lobby contributes materially to these evil results.

The dangers of the water-closet system are forcibly expounded, the author showing that in many cases the supply of fresh air to a house is obtained principally through the water-closet. "This is one of the evils that our improved architecture and building have increased, if not absolutely provided for us. The water-closet opens into the lobby; the front door is made to fit as tightly as possible, to prevent cold draughts, and this prevents fresh air coming in from the front; whilst, with well-fitting intermediate doors to shut off kitchen smells, the admission of fresh air from the back of the house is prevented. These arrangements make the lobby into a chamber, with the termination of the main drain opening into it through the water-closet." In winter time the fires in the living rooms suck in the poisonous gases and disease germs through the closet-pen out of the drains.

After a passing reference to a partial remedy for such an untoward state of matters, Dr. Hayward proceeds to unfold his general and complete remedy for the evils enumerated, which is concisely defined as "Ventilation with warm air by self-acting suction power." His first requirement, which he holds to be an absolutely fundamental condition of a healthy and comfortable house, is an ample supply of fresh and agreeably warm air in the lobbies, corridors, or other central spaces out of which the rooms of the house open or draw their supply; this is provided for by a tubular pipe at the enterance opening, or somewhere in the lobby. The next thing is the admission of this air into the rooms, for which special outlets are provided, controlled by valves to accommodate the supply to the partial occupation of the room. The abstraction of the vitiated air is managed by a separate flue from the ceiling of every room and water-closet, and from every gaselier in the house, terminating in a common chamber permanently heated, and communicating with a shaft, which may be let into the kitchen flue, and must be so proportioned to the size of the house as to empty it of air three times every hour, and as often will the whole house be replenished with fresh air. This plan has been tried, proved completely successful, and very cheap. A few details superadded, Dr. Hayward concludes: "Finally, I am sure it is the warmest house in winter and the coolest in summer; the most airy and fresh, and at the same time the house that is the freest from cold draughts in this country, if not in the world; and from personal experience of the comfort and advantage of living in a house built to live in, and of the discomfort of living in houses built for gain, I do not hesitate, in reference to ordinary houses, to vary the well-known epigram, and say that 'Knaves build houses, and fools live in them.'"
—*Iron.*

Special Notices.

BRADLEY'S

Cushioned Hammer

can be seen in operation

at the **American Institute, New York,** until the close of the Exhibition, about Nov. 15th.

Our agent, Mr. J. C. Brown, will take pleasure in showing the Hammer at work.

This Hammer has larger capacity, is more durable, does more and better work, at less expense for power than any other Hammer in use.

Yours, respectfully,

Bradley Manufacturing Co.,
Syracuse, N. Y.

R. T. HAZELL, AUCTIONEER.

By R. T. Hazell & Co.,

Store No. 118 Chambers Street.

Our REGULAR SALES of HARDWARE, CUTLERY, FANCY GOODS, &c., will be held on TUESDAYS and FRIDAYS throughout the season.

CASH ADVANCES made on CONSIGNMENTS without additional charge.

Special Notices.

The advertiser wishes to make arrangements with a merchant or manufacturer who employs travelers, to call upon railway companies, engineers or iron mongers, for the sale through his agency of a useful engineers' tool recently patented in the United States. Address, postage paid,

Box 14, P. O., Sheffield, England.

HOME OR FOREIGN AGENCY.

An Englishman who has acted for some years as Agent for an Engineering firm, both in this country and in Great Britain, desires the Agency, either in Europe or the United States, from a large firm manufacturing Machinery, Hardware, &c. Has had great experience, and is a thorough man of business. Highest references. Address, **E. A. W.,** Care of **S. R. NILES, Advertising Agent, Boston, Mass.**

THE ATTENTION OF MANUFACTURERS AND business men is called to the natural advantages of Bristol, Bucks County, Pennsylvania, for a manufacturing site, situate on the River Delaware, with a river front of over one mile, navigable for vessels drawing 15 feet water, 18 miles from Philadelphia, on the line of the New Jersey Division, Pennsylvania Railroad, between Philadelphia and New York, and at the terminus of the Delaware Division of the Lehigh Canal, by which coal and iron are brought to our town cheaper than at any other point between New York and Philadelphia.

Bristol is noted as being a very healthy place, with cheap homes and low rents, good public and private schools, six churches of different denominations, and several manufacturing establishments already established. It contains a population of over 5000, and is constantly increasing in size and population.

Believing that Bristol possesses advantages that few other towns possess, and that the attention of manufacturers need only be diverted in this direction, the Burgess and Council have enacted the following ordinance, viz.:

Be it ordained and enacted, by the Burgess and Council of the borough of Bristol, and it is hereby ordained and enacted by the authority of the same, That all manufactories which shall be erected within the borough of Bristol, during the period of ten years from and after the passage of this ordinance, shall for and during said period be exempted from the payment of borough tax.

Enacted into an ordinance at the Council Chamber, this fourteenth day of July, A. D. 1873.

CHARLES E. SCOTT, Burgess.

Attest: J. WESLEY WRIGHT, Clerk.

BRISTOL, Pa., July 21, 1873.

Translations and Condensations.

The undersigned, commercial Editor of *El Cronista* the Spanish Government paper in this city, and Foreign Editor and Translator of the *Daily Bulletin*, has made it a specialty for years past to translate industrial matter, with the strictest adherence to the technical wording, from and into English, German, Spanish and French, for manufacturers, patentees and others, and begs to be recommended to the iron masters and trade in that capacity.

C. KIRCHHOFF, Box 2806. Post Office.

Latest Publications translated by C. KIRCHHOFF. "German Imperial Consular Instructions." "Cuba may become Independent." Officially endorsed by the governments of Germany and Spain.

STERLING

IRON & RAILWAY CO.

MAKERS OF

STERLING

ANTHRACITE PIG IRON

FOR FORGE AND FOUNDRY USE.

A. W. HUMPHREYS, Treas.,

42, PINE ST., N. Y.

To Furnace Men and Malleable Iron Manufacturers.

For Sale or to Let.—The McHaffie Steel Co.'s Works, at Lamokin, on the P. W. & B. Railroad, at its junction with the Baltimore Central, comprising Foundry, Annealing Furnaces, Machine, Blacksmiths' and Carpenters' Shops, &c., &c. These Works are most eligibly located, and with ample facilities for doing a large business. Parties desiring such property are requested to apply in person at the Works, or by letter addressed to The McHaffie Steel Co.," Chester, Delaware Co., Pa.

MANUFACTURERS

desirous of introducing their goods to the **British** and **Continental** Markets, are advised to insert advertisements in the newspaper **"IRON,"** published every Saturday, at *99 Cannon Street, London, E. C.*

SCALE: First 3 lines, 3/; every additional line, 10d. Price, 6d. per Copy, or 30/ per annum, inclusive of postage to the United States.

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(Copyrighted Revised Lists.)

DISCOUNT BOLT LIST.

Book form, Common and Philadelphia Lists, 20 discounts

DISCOUNT SCREW LIST.

On Card Board or Paper, 13 discounts.

Single copy, $1·00; two or more, 75 cents each.

Mailed, in perfect order, prepaid on receipt of price. Address **FRANK DAYTON, 83 Duane St., N. Y.**

Your Discount Lists are in constant use, and we find them invaluable. P. DUEYEE & Co., N. Y.

The Discount Screw Lists are a very valuable assistance to us, and would be to all Hardware dealers, and you deserve the thanks of them all.

M. S. & R. E. HARRIS, Cochocton, N. Y

"ENGINEERING,"

A Weekly Illustrated Journal, edited by **W. H. MAW and JAMES DREDGE.**

OFFICES. { 37 Bedford St., Strand, London, W. C. / 52 Broadway, New York.

GEO. ED. HARDING, C. E.

Representative in United States.

This most successful English Engineering Journal, containing thirty-six pages, weekly, illustrating the latest advances in Civil, Mechanical, Mining and Military Engineering Science, both in Europe and America, can now be obtained by American subscribers, post paid, for $7·50, currency, per year, sent to the New York office of the Journal.

All the important details of the buildings and novel machinery at the great Vienna Exposition will be illustrated and described in *Engineering* the current year; and this, with illustrations of all the larger American engineering structures, will render it invaluable to every American Engineer, Architect, Iron Master and Machinist.

The best medium for advertising American Machinery to the attention of European capitalists.

Send for specimen copy, free.

NEW YORK, July 1, 1873.

Special Notices.

THE

CANADIAN BANK OF COMMERCE.

Capital - - $6,000,000, Gold.

Surplus - $1,500,000, Gold.

The New York Agency, No. 50 Wall Street, buys and sells Sterling Exchange, makes Cable Transfers, grants Commercial Credits, and transacts other Banking Business.

J. G. HARPER, J. H. GOADBY, } Agents.

CHARCOAL IRON.

Parties owning a large and very superior Furnace, 90 miles from Cincinnati, and an unlimited supply of the best Iron Ore, adjoining it, with abundance of timber for making Charcoal, wish to enter into arrangements with men of experience and means to run the Furnace for a term of years, under arrangements to be agreed upon. There is no place in the United States where Charcoal Iron can be made at as low a cost, or where transportation to market will cost less. Apply to

JOHN A. POMEROY,
No. 47 West Second St., Cincinnati, O.

A young man desires a situation as manager for a furnace company. Has eleven years experience in the business; best of reference given. Would prefer to go West.

Address **"IRON,"**
Allentown Lehigh Co., Pa.

Founder Wanted.

Wanted a founder for a charcoal furnace in the State of Virginia. Must be accustomed to making car wheel iron from brown hematite ores, with warm blast. Address, stating price and references,

"K," Office of The Iron Age,
No. 10 Warren St., N. Y.

For Sale, &c.

Valuable Iron Works, For Sale.

The undersigned offers for sale the Iron Works in Pottsville, Schuylkill County, Pa., known as "The Washington Works," consisting of a

Large Stone Machine Shop & Foundry,

Brick Pattern House, Erecting Shop, Stone Blacksmith Shop, Brick Office, and Lot of Ground containing in front 195 feet 3 inches, and in depth 260 feet.

There will be sold with the above a large and valuable collection of Patterns, Heavy Crane Flasks and Heavy Core Spindles for making heavy Castings and Pipes of all sizes; Turning and Planing Tools.

The Works can be put in immediate operation A favorable opportunity is here presented for enterprising men. The demand for Castings and Machinery is constantly increasing in this region. The property will be sold on liberal terms. ***If not sold in a reasonable time it will be for Rent.***

For particulars apply to

J. W. ROSEBERRY, Trustee,
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FOR SALE.

Machinists' Tools, Patterns, &c.

The Hope Iron Works, Providence, R. I., contemplating a change in their business, offer for a large and valuable collection of Machinists' Tools which have all the latest improvements.

Blacksmiths' & Pattern Makers' Tools.

Also a large and varied assortment of patterns more extensive than usually found. They also offer Patterns and Special Tools for the manufacture among others, of the following specialties, which equal, if not superior, to any made:

Hangers, Pulleys and Couplings.
Geared Pumps.
Portable Engines of all sizes.
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Boiler Fronts and Fittings.
Grind Stone Troughs.
Tools and Fixtures for Blacksmiths.
Lathes and Planers.

Many of these specialties would make a business, and are worthy the attention of machine shops and foundries looking for business. Address

JOSEPH P. MANTON, Providence, R. I.

FOR SALE.

Hardware, Stoves & Tinware & Business House,

Doing a **Cash Business** of **$20,000 per annum** at **25 per cent. profit,** in **Central, Ills.** For information address **"W."**

Office of The Iron Age, 10 Warren St., N. Y

Iron Foundry For Sale.

Any person wishing to engage in the foundry business, may learn an opportunity to purchase new building just erected for said business, all complete and ready to be started without delay or additional expense. A shovel factory adjoining the foundry will furnish a large and regular demand for castings. For further particulars, address,

H. F. A., Box 488, Northampton, Mass

Or said property would be exchanged for unencumbered productive real estate.

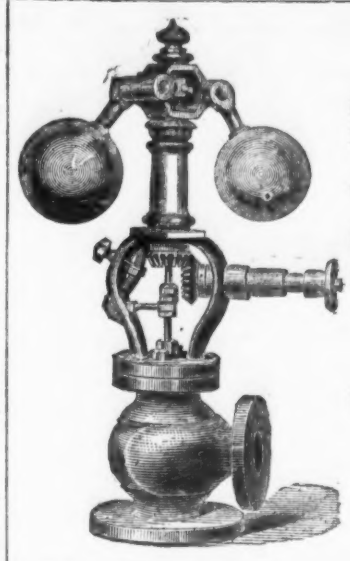
For Sale or To Let.

The Stove Foundry lately occupied by Munsell & Thompson, situated at Elizabethport, N. J.: can be adapted to any manufacturing purpose, having coal and iron within one block, direct from the mines. Communication with New York 12 times a day by rail, and 4 times by steamboat. Within half a block of the river. Will be let for one or more terms of years. Apply to or address **A. SAIZ & CO.,**
32 Broadway, N. Y.

ENGINE FOR SALE.

One Heavy Rolling Mill Engine, Cylinder, 24x48 inches, 12 ton Fly, and gearing for a speed of 450 revolutions per minute, for Rolling Iron Rods. Also, four Cylinder Boilers, 36 inches diameter by 40 feet long, together with Steam Pipe and other connections.

Address **John A. Roebling's Sons,**
Trenton, New Jersey.



TO ALL WHO USE STEAM-POWER!

We will put our Governor on any Engine, and guarantee it to prove itself superior to all others.

If, after a fair trial, it does not, we will take it off at our own expense.

Shive Governor Co

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ALSO,

SHIVE'S PATENT WATCHMAN'S CLOCK AND DETECTOR.

The Best and Cheapest Watcher of the Watchman made.

PRICE ONLY $15.

Circulars sent free.

Vulcan Manufacturing Co.,

61 Warren Street, cor. College Place, New York.

MANUFACTURERS OF

MILES' FAMILY AND BUTCHERS' MEAT CUTTERS,

And Butchers' Machinery, Tools & Fixtures

of every kind.

Miles' "Challenge" Family Meat Cutter.

This Machine has the following advantages over all other Cylinder Meat Cutters:

1st. **It is much more simple in its construction.** There are but three different parts inside of the machine, all of which can be readily taken out, separated, cleaned and replaced; consequently there is no place about the machine where meat or the juices of meat can get lodged and become rancid.

2d. The fingers on the arbor are so arranged that the knives shear close to them when the machine is in operation, thus **cutting the meat cleanly and evenly,** instead of tearing it apart like other Cylinder Meat Cutters.

3d. The knives are firmly held in their places—at one end by the block of iron into which they are cast, and at the other end by the grooves in the arbor, into which they fit; making it impossible for one to break while cutting meat.

4th. The ends of the knives thus entering into the grooves make bearing for the arbor, and prevent it from breaking or springing.

5th. The machine will cut more easily and more rapidly than any other Meat Cutter.

C. HAMMOND & SON,

Mfrs. of Hammers, Edge Tools, Railroad, Machinists' & Blacksmiths' Tools,

Office and Sample Rooms, 13 N. 5th Street, PHILADELPHIA.

Unfinished Picks.....$ 8·50 per doz
Finished Picks..... 10·00 per doz
Finished Swedish Iron Picks.. 12·00 per doz

Ausable Horse Nail Co.,

MANUFACTURERS OF

SUPERIOR HAMMERED

HORSE NAILS,

FROM

BEST NORWAY IRON.

Orders promptly filled at lowest market rates.

ABRAHAM BUSSING, Secretary.

35 Chambers Street, New York.

GLOBE NAIL COMPANY,

MANUFACTURERS OF

Pointed, Polished & Finished Horse Shoe Nails.

Recommended by over 20,000 Horse Shoers.

All Nails made from best NORWAY IRON, and warranted perfect and ready for driving. Orders filled promptly and at lowest rates by

GLOBE NAIL CO., Boston, Mass.

CROOKE & CO.,

MANUFACTURERS OF

WROUGHT IRON BUTTS,

All our goods are manufactured from patent faced iron plates; they have a smooth face and bright finish.

163 & 165 Mulberry Street, New York.

The Iron Age.

New York, Thursday, November 6, 1873.

DAVID WILLIAMS . . . Publisher and Proprietor.
JAMES C. BAYLES . . . . Editor.
JOHN S. KING . . . Business Manager.

The Iron Age is published every Thursday morning, at No. 10 Warren Street, New York, on the following terms:

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The Problem of Cheap Transportation.

Although the question of cheap transportation has been so fully discussed during the past few years, that discussion upon it may be said to be almost, if not quite, exhausted, the public interest in the subject has gradually increased until it may be said to have assumed the character of a popular excitement. Whether we are any nearer a permanently satisfactory solution of the question, now that we have our "granges" and cheap transportation associations, than we were when newspaper writers and convention orators monopolized the discussion, is doubtful; but there can be no doubt that we are rapidly approaching the time when public sentiment will demand the trial of bold, and perhaps dangerous, experiments, and when Congress will be called upon to fix the rate of inter-state transportation—an extra-constitutional power it has long desired to wield, but which it has not yet ventured to assume. In many States, especially in the West, the people have long been of the opinion that it lay in the power of their representatives at their State capitals to give them cheap transportation by special enactment. How far they were right in this belief it is not our present purpose to consider, but the fact remains that, wherever the experiment of regulating railroad operations by law has been tried, it has ended in practical failure, and, in the main, resulted more in injury than benefit to the interests which such laws were, nominally at least, designed to protect. Transportation has not been cheapened by this means; on the contrary, what little advantage has resulted to the shippers of local freights has been gained at the expense of the interest of those who ship through freights; and where both through and local freights have been cheapened, the railroads have been so far injured financially that the building of new lines has been discouraged, and expectations of fair and continuous profits upon investments already made, disappointed. These are broad and general statements, but we believe them to be susceptible of the clearest proof, did time and space permit us to review in detail the attempts which have been made up to this time to secure cheap transportation by the American expedient of "Be it enacted."

To the people most deeply and immediately interested in this question, and who have watched the results of railroad legislation through seasons of alternate expectation and disappointment, the question has naturally presented itself—are State legislatures competent to deal with a question which is, from the nature of the case, a national one? Not only has there been no harmony of purpose or concert of action between the various State governments in their efforts to provide remedies for the real or imaginary evils of the present system of railroad management, but none can reasonably be expected; therefore, while State legislation may prove beneficial in a local sense, is it probable that the final result of separate action on the part of the several States will enable the Wisconsin farmer to lay down his grain any cheaper at New York, or the Missouri retailer to receive his merchandise at a lower rate per hundred-weight than he must now pay? Probably not, judging from past experience. What, then, is the remedy? The only answer to this question, which is at once so simple and direct as to commend itself to the mass of the people, is that the remedy, if there be one, lies with Congress. With this idea once fixed in the public mind, the problem assumes a new phase. Why not nationalize the railroad system of the country? So far as transportation is concerned, State boundaries are now, literally, only "imaginary lines." The country is spanned by great through routes; capitalists in one State own and control lines extending into or through half a dozen other States; roads built under charters granted by Ohio and Illinois are owned and controlled by corporations organized in New York or Pennsylvania, and passengers and freights may be carried from the Atlantic to the Pacific without change of cars. Is not our railroad system national in the most literal sense of the term? Why, then, is it not better that Congress should assume the task of regulating inter-state transportation by national laws, under authority of the clause of the Constitution which makes it the duty of that body to regulate commerce between the States?

In this shape the problem of cheap transportation presents itself to the popular mind at the present time; and although the struggle between the people and the railroads is still maintained in several States, we are satisfied that a majority of the people of the country look to Congress for the ultimate and only solution of the vexed question of how to secure uniformly low rates of through and local freights; and the probabilities are that, before the close of the winter season, Congress itself will have moved in this direction far enough to test the strength of the public sentiment in favor of a somewhat more liberal interpretation of the clause of the Constitution above referred to than was intended by the framers of that document, or than would have been accepted by the people ten, or even five, years ago.

In view of this probability, it becomes interesting to speculate upon the results which are likely to follow the transfer of experimental railroad legislation from the several State capitals to Washington. With the *Credit Mobilier* scandal and the lavish gifts of public lands to railroad speculators fresh in memory, it is difficult to feel much confidence in either the ability or willingness of Congress to deal with this question in good faith and with an honest desire to protect the public against the growing power of the great monopolies which have acquired control of so large a part of the railroad system of the country. We do not know, however, that it would be any more dangerous to make the experiment than to refrain from making it; for it is probable that more harm will result from the reckless policy which the legislatures of several Western States have adopted in dealing with the railroads, than from the acts of a body in which the influence of local excitements could not be felt, and which would consider the question, in whatever phase it was presented, from a national standpoint. Again, it is doubtful if lobby influence would be as potent in Washington as it has been in the State capitals, notwitstanding the fact that the railroads would then be in a position to make common cause for or against any measure which might be presented, and the position of the Committee on Transportation would be one of peculiar difficulty and responsibility. As an offset to this, it must be remembered that the people also would have a common cause to further; that the acts of Members of Congress would be subjected to a much more searching and formidable criticism than those of State legislators usually receive; that men who attain the honor of seats in the Senate or House are—presumably, at least—less corruptible than the average of petty politicians who secure election to the State legislatures; and that the interests represented in Washington are so many and widely various, that no law affecting the railroads could pass which did not promise to be of national benefit. In the present temper of the people, no "log rolling" would be tolerated, so far as laws relating to transportation are concerned. The experiment, therefore, might not prove so dangerous as many intelligent persons fear; and while we do not approve it in any sense, we cannot but think that, as compared with the wild State legislation of the past four years, it will prove the lesser of two evils. Nothing could be more unfavorable to the cause of cheap transportation, to the re-establishment of public confidence in railroad investments, or to the prosperity of the sections remote from the markets upon which they must depend, than the uncertainty which exists concerning the results of the guerrilla warfare now in progress between the people and the railroads—not even Congressional interference.

American Ores for the Centennial Exposition.

In another column of this issue we publish the letter of Hon. Daniel J. Morrell, Chairman of the Executive Committee of the United States Centennial Commission, to Mr. Samuel J. Reeves, President of the American Iron and Steel Association, in which the matter of collecting, classifying and preparing for exhibition the iron ores of the country is committed to that Association. The communication referred to by Mr. Morrell as having been received by the Commission, urging action upon the proposition of Mr. J. Blodget Britton, of Philadelphia, together with the proposition of that gentleman offering his services and the use of his well appointed laboratory without expectation of personal profit, have already appeared in these columns. At the time of their publication we had information from trustworthy sources which led us to believe that the Centennial Commission would find itself unable to take any responsibility in the matter, for the reasons so clearly set forth in Mr. Morrell's letter, and in our issue of September 18th we discussed the subject at some length, outlining a plan of operations by which the Iron and Steel Association could, with the least expense and trouble, undertake the work and carry it to a successful issue. It is evident that Mr. Morrell had a similar plan in mind when writing to Mr. Reeves upon the subject, and it is probable that the Secretary of the Iron and Steel Association, Mr. Swank, will present the matter at the next annual meeting of that Association in such a shape that it can be immediately and definitely acted upon. The plan provides for the appointment, by the Iron and Steel Association, of a National Committee, consisting of one suitable person in each State, to which will be committed the work of collecting specimens of all the developed ores of their respective States, with consumers' analyses and a map, or maps, showing the location, extent, &c., of the known iron deposits that are sufficiently rich to be workable. The expenses of this work may be, in some instance, met by local subscriptions or by legislative appropriations, but where no such subscriptions or appropriations could be obtained, or where the amounts thus placed at the disposal of the members of the National Committee are insufficient to meet the legitimate expenses of collecting and forwarding the ores to a suitable repository in Philadelphia, they should be met from a fund raised by private subscription in the iron trades, to be disbursed by the treasurer, or other officer or officers, of the Iron and Steel Association. The services of members of the National Committee would be rendered gratuitously, and the Iron and Steel Association would be called upon to meet only such necessary expenses as were not provided for in other ways. With proper care in the selection of a committee, there is but little doubt that most, if not all, the States with iron resources worth developing would render such assistance as would insure the work being done thoroughly and well, and that the Iron and Steel Association would be relieved of all expense beyond that incurred in providing a proper repository for ores sent them, under the charge of a competent person.

We certainly hope the Iron and Steel Association will appreciate the importance of the opportunity thus offered it to perform a work which will contribute much to the progress of our iron industries. It has been urged as a reason for making a creditable display of our iron ores at the Exposition, that we should take advantage of the opportunity to show the representatives of other nations the extent, variety and value of our iron resources. A still better reason is found in the fact that we ourselves want to know what our resources are. In a country of such vast extent, and so sparsely populated in proportion to territory, as compared with other and older countries, no comprehensive or accurate geological survey has been possible. New discoveries of great interest and importance are made almost daily, and it is impossible for the best informed person to gain more than a general and very imperfect idea of what ores are or may be mined in sections of the country with which he is not personally familiar. It is literally true that we do not know what our own resources are, and it is especially desirable that we should know. It has been stated, and by many believed, that influences unfavorable to the movement will secure its defeat, because of a jealousy on the part of Eastern iron makers of all sections which may possibly come into competition with them in future, and an unwillingness to promote in any way the development of those sections by permitting attention to be called to their resources. It has also been charged by the free traders that, while the iron masters of the country would make any sacrifices to maintain protection, they would refuse to spend a cent for progress. We hope the Iron and Steel Association, by taking prompt and liberal action upon the suggestions contained in Mr. Morrell's letter, will stamp these suspicions and accusations as false, and that the organization which has already done so much to promote the distribution of useful knowledge, will not neglect this opportunity to render the iron trades a service of great and permanent value.

A Few Words to the Workingmen.

While it cannot be denied that the outlook for the labor market, for the next six months, is anything but encouraging to those who have only their labor to sell, it lies in the power of the workingmen either to make matters a great deal worse for themselves than they now are, or to contribute materially to the improvement of the conditions affecting manufacturing throughout the country. The time has come when employers in most trades are compelled to resort to extreme measures of self protection to save themselves from bankruptcy. Many have already adopted the expedient of suspending operations and closing their works until they can sell their products upon more favorable terms than are now obtainable. We do not think they have chosen this course, but where it has been followed it has usually been the only one open. Among those who have not suspended work, a great majority have found it necessary to reduce their production, and to cut down wages from ten to twenty-five per cent. So far as we can learn, there is a general desire among employers to protect their workmen, so far as possible, from the effects of the panic from which they are themselves suffering so severely. In many instances which have come to our knowledge manufacturers have continued work upon half or three-quarters time, where they would have saved money by stopping altogether, and their only reason for continuing has been a desire to avert the suffering and privation which would follow the total stoppages of their works. Now, it requires no argument to convince the dullest intelligence that the manufacturers of the country have not brought about the general suspension of manufacturing for any purposes of their own, or that they are in no way responsible for it. Employers generally are hard pressed on every side, and if they suspend it is only because the losses of suspension are less than the risks of continuing operations. But whatever their disposition in the matter, the cases are wholly exceptional in which employers can continue operations under existing conditions, with wages at the rates they were able to pay when in the enjoyment of full prosperity. Labor must be cheapened or capital will not find profit in giving it employment; and as they accept or reject the offers of employers to continue work upon a reduced scale, the workingmen can, as we have said, contribute materially to the restoration of prosperity, or to a more general and absolute stagnation than now exists. As the rule, the workingmen have submitted without complaint to such reduction in their wages as employers have found it necessary to make. Knowing that their employers have conceded all their reasonable demands—and some that were unreasonable, perhaps—in seasons of prosperity, they accept the terms offered them without complaint, and continue work, hopeful of better times for themselves and the masters. In some instances the men have felt so much confidence in their employers as to return part of the wages paid them in cash, as a loan to their employers, accepting certificates of indebtedness, which the masters will redeem as soon as they are able. In other instances, however, the men have stoutly resisted any reduction in wages, threatening to strike if they were not granted their own terms, and, in a few instances, carrying this threat into execution The folly of such a course at such a time must be evident to all who are not so hopelessly stupid as to be incapable of reasoning or listening to reason. How general will be the trouble growing out of the efforts of the trade unions in some districts to maintain wages, we do not know; but our advice to the workingmen is to submit to any reasonable reduction in wages or hours of labor, and make the best of the situation. By manifesting a reasonable disposition they will gain the confidence of employers and stand a better chance of sharing in the improvement when it comes; by making trouble and forcing suspensions which might have been averted, they will alienate, in a great degree, the public sympathy to which they may need to appeal before the winter is over; and by discouraging capital from engaging or remaining in manufacturing operations, turn the balance against labor for months, and, perhaps, years to come.

We would also take advantage of the present opportunity to call the attention of the laboring classes to two things which it would be well for them to remember. The first is, that no country can expect to enjoy continuous and uninterrupted commercial and industrial prosperity, and that the time to provide against misfortune is while enjoying the blessings of abundant good fortune. During the past few years labor in all trades has earned large wages. While all commodities have declined and the cost of living steadily lessened, labor has remained dear, and in some instances steadily advanced. We have no fault to find with this, and our purpose in calling attention to the fact is only to show that the working class have, as the rule, had abundant opportunity to make provision for the future. That they have done so to a great extent is shown by the heavy accumulation of small deposits in savings banks established in manufacturing centers; but it is to be feared that in a majority of instances high wages have encouraged extravagance, rather than economy, and that, among those now cut off from employment, a large proportion will experience want, and, perhaps, suffer extreme privation, should the suspention continue through the winter. A lesson of thrift is, therefore, to be drawn from the unexpected misfortunes which have overtaken our working classes, which should not be forgotten. We would also call attention to the helplessness of the trade unions in such an emergency, and the falseness of any promises which they have made to protect the workingmen in the enjoyment of high wages. In times like these the blatant demagogues who are wont to urge a "more vigorous prosecution of the war upon capital" have nothing to say. Probably they will continue to make a living in some way out of their misguided and deceived followers, but they are powerless to aid when aid is needed. What have the unions to show for the money they have spent in strikes and "congresses," and in salaries to men too lazy to work at any honest trade? We leave this question to be answered by the workingmen, who must begin to think by this time that the "war upon capital" is very much like Don Quixote's tilt with the useful windmill which he mistook for a terrible and dangerous giant, ending in nothing more serious than the discomfiture of the attacking party.

The New York Industrial Exhibition Scheme.

The communication of Mayor Havemeyer to the Common Council, in which he asks for a reconsideration of the resolution granting $2,500,000 to the Industrial Exhibition Company, will probably put a check to the operations of the managers of that enterprise for some time to come. Mayor Havemeyer says:

The company has made an agreement to purchase premises—where made and with whom is not revealed. That there are some persons deeply interested in this scheme, not as a public institution, but as a gigantic piece of public plunder, is beyond all question. The premises referred to, which it is now proposed to pay $1,750,000 for out of the city funds, were purchased June, 1871, for $550,000; and the difference between this latter amount and the sum of $1,750,000 proposed to be paid by the city will go direct into the pockets of these interested persons.

This Industrial Company has merely a legal existence. It has no property no funds of any descrip-

tion. Debts have been contracted in its name which it is unable to pay. In fact, it is the scheme of a pure adventurer, which, in his hands, never was intended and never will become a public benefit. To this company, or rather to this adventurer, the city is now required by the resolution before you to loan a sum of $2,500,000. After the promoters of this undertaking have succeeded in securing to themselves enormous loans in the purchase scheme, there remains a sum of $750,000 of the loan to be applied to the payment of the expense of the erection of the proposed building and to pay all other expenses of this corporation. In this city we have had some experience as to the art of erecting public buildings. There is not one of your honorable body who entertains the idea that the proposed building can be erected and the objects of the company carried out for this sum of $750,000. It will take upward of $5,0 0,000 to do so, and whence is this money to be obtained? Either the buildings will never be erected, or, if they should, it is contemplated that this will be done at the further expense of the city, authorized by further legislation. * * * * * *

If by your action you shall encourage the promotion of this scheme at the public expense, you put into the hands of those interested therein the funds required to enable them to go to the legislature to secure further powers at the public expense. This is so certain to be the result of your approval of the scheme that I cannot but hope you will pause before giving it such sanction, and that the resolution you have already passed shall be reconsidered and rescinded by you.

Probably Mayor Havemeyer knows what he is talking about, and the public will not be surprised to learn from him that the scheme of building a "Palace of Industry" at the public expense is a gigantic job, which has nothing to recommend it to public favor. The Mayor is right. There is no reason why the public treasury should be depleted at any time, and more especially at this time, to further the ends of certain private speculators, who propose to confer upon the public the doubtful benefit of maintaining a perpetual industrial exhibition. It is no secret that a great deal of money has been spent in "popularizing" the idea through the newspapers whose influence could be purchased, and in buying the favor of those whose influence was needed to secure the passage of the bill authorizing the city to make the appropriation, as well as of the appropriation itself, which the Mayor has refused to approve; and when such influences are used, it is safe to regard with distrust and suspicion the scheme which they are employed to further. When a "Palace of Industry" is needed, private enterprise will undertake the work with private capital, and the more our unnecessary municipal expenses are reduced and real estate released from the burdens of onerous and increasing taxation, the sooner we shall be in a position to spend four or five millions of dollars upon a permanent exhibition building. If there is any surplus in the public treasury which can be spared without increasing the burdens of the people, it would be better expended in aid of some practicable system of quick transit by steam between the City Hall and Westchester.

Iron Ores for the Centennial.

The following letter, from Hon. Daniel J. Morrell to Mr. Samuel J. Reeves, committing to the American Iron and Steel Association the work of collecting specimens of the iron ores of the several States for exhibition at the Centennial, will be read with interest:

OFFICE OF THE U. S. CENTENNIAL COMMISSION, 904 WALNUT STREET, PHILADELPHIA, Oct. 16, 1873.

SAMUEL J. REEVES, Esq., President of the American Iron and Steel Association, 522 Walnut Street, Philadelphia.

DEAR SIR: The Executive Committee of the Centennial Commission have received a large number of communications, emanating from prominent iron masters, manufacturers, chemists and business men in every section of the United States, requesting the committee to take some action upon the proposition of Mr. J. Blodget Britton to secure a comprehensive exhibition of the iron ores of the United States in the Centennial Exhibition. The writers of these communications have, in almost every instance, assumed that to make a collection, classification and analysis of ores is properly within the province of the commission, and they, therefore, have suggested plans by which the proposed exhibition of ores will secure wide-spread co-operation among those interested in the development of the mineral resources of the United States.

Waiving all discussion of the importance of such an exhibition, and conceding the incalculable benefit accruing from the efforts of the people to make this collection of ores a complete display of the mineral wealth of the country, the Executive Committee of the Commission desire to state that, in their view, it is wholly impracticable for the committee to take such charge of the work of collecting, classifying and analyzing ores as is contemplated by the writers of the communications referred to. They will provide a place in the exhibition building for the exhibition of specimens, and will endeavor to secure all conditions necessary to a favorable display, and to afford every requisite for a satisfactory examination by visitors. But they cannot take charge of the preliminary work of collection, as that would involve the employment of salaried officers, the consumption of time otherwise needed, and the entailment of heavy expenditures for the purpose of assisting in the display of but one of the many products of this favored land. Other industries may claim this attention from the committee as well as the iron interest, and it can readily be seen that such an extension of the powers and duties of the Centennial Commission was not contemplated by the act of Congress which called them into being, nor could it be attempted by them without a serious complication of their present heavy task. Boundless would have been their field of labor and endless the demands upon their time, had they been made the representatives of the individual industries of the country in addition to their present duties as directors of the exhibition.

In this view of the matter, the Executive Committee respectfully decline to assume the responsibility of making the collection of ores requested, and refer it to the American Iron and Steel Association as an organization composed of men not only pecuniarily interested in all that pertains to iron, but also abundantly competent to assume the direction of an undertaking at once important, necessary and laborious. The office of the American Iron and Steel Association is at Philadelphia, sufficiently near the headquarters of the Centennial Commission to insure perfect knowledge of all the requirements of the specimens to be exhibited and of the nature of the place in which they are to be shown, which is necessary to the completeness and satisfactory arrangement of the vast work here contemplated.

The Executive Committee do not make this disposition of the labor sought at their hands without a full understanding of the pecuniary burden it will necessarily impose upon the recipients. They, therefore, suggest that a fund be raised by private subscription to defray the inevitable expense of the collection of ores, and placed in the hands of the treasurer of the American Iron and Steel Association. The association should designate some skilled metallurgist of national reputation, marked enthusiasm and cultivated taste to receive the various specimens and arrange them properly in a suitable place until the time shall have arrived for their removal to the exhibition buildings, and afterward to superintend their collection in the place to be assigned by the Centennial Commission. To the governors of the different States and Territories the duty of appointing suitable persons to make the local collections, and forward them to the officer designated by the association, might be intrusted.

Local agents will be able to collect the various specimens of ores, which should in each case weigh not less than fifty pounds, as suggested by Mr. Britton, and while care should be taken to secure the best samples, analyses of the ore, both by mine owners and consumers, should be transmitted with them in order to make the collection interesting and its published description accurate. As nearly all the ores used have been analyzed, there need be very little expenditure for the services of chemists, and no time will be lost in waiting for the result of their investigations. In all cases a map of the locality whence the ores are procured should accompany the specimens, so that the display will be geographically perfect. To demonstrate beyond dispute the nature and extent of the deposits of ores to be represented, geological maps should also be sent, and, in case a State has made no geological survey, it should be induced to make one of its iron fields. The value of such an enterprise to the development of the resources of a State is fully shown in the benefits resulting to the State of Indiana from the admirable survey by Prof. E. T. Cox, now partially completed. These proofs of the actual wealth of the mineral deposits of each section are imperatively necessary to make the proposed collection worthy of the confidence which the capitalists of this country and our expected visitors from abroad will undoubtedly repose in it.

I am, sir, yours, very respectfully,

D. J. MORRELL,

Chairman of the Executive Committee.

The Coming Boiler Tests at Sandy Hook and Pittsburgh.

The preparations for the extensive series of experiments in the explosion of steam boilers, at Sandy Hook and at Pittsburgh, have been proceeding with great vigor during the past few weeks, and are now complete. During the past month Supervising Inspector Low has made frequent visits to the scene of the coming tests, and on several occasions has been accompanied by eminent engineers, manufacturers, and scientists, whose interest in the experiments has led them to examine carefully the preparations going forward. It is the purpose of the commission to institute experiments to test the truth or fallacy of the various theories as to the causes and conditions of steam boiler explosions—theories which are briefly enumerated as follows:

1. Explosions caused by the gradual increase of steam pressure.
2. Those caused by low water and overheating of the plates of the boiler.
3. Those caused by deposit of sediment, or incrustation on the inner surface exposed to the fire.
4. Those caused by the generation of explosive gases within the boiler.
5. Those caused by electrical action.
6. Those caused by the percussive action of the water in case of rupture of boiler in the steam chamber—Clark & Colburn theory.
7. Those caused by the water being deprived of its air.
8. Those caused by the spheroidal condition of the water.
9. Those caused by the repulsion of the water from the fire surfaces or plates.

The commission appointed by the government to carry forward the work, consists of the following named gentlemen: Supervising Inspector Addison Low, of New York; C. W. Copeland, of New York; J. H. Robinson, of Boston; Supervising Inspector John Menshaw, of Baltimore; J. V. Holmes, of Ohio; Benjamin Crawford and Supervising Inspector John S. Devinney, of Pittsburgh. As has been announced, $100,000 has been appropriated by the United States government to be expended on the experiments at Sandy Hook and Pittsburgh. The tests were expected originally to occur in September or at the latest in October, but the preparations have been so much more extensive, and the time consumed so much longer than was at first deemed necessary, that the delay of two months has been unavoidable. A force of 20 men has been constantly employed at Sandy Hook during the past few days, and 10 boilers have been placed in position. These boilers, upon which the first experiments are to be made, are constructed of the best material, are in a perfectly sound condition, and are to be placed in the position naturally occupied by them on the vessel. Self regulating gauges of high pressure are to be buried in the earth near the boilers, and all necessary instruments, including pyrometers, thermometers, etc., in readiness. At a distance of 360 feet from the boilers is the huge bomb-proof, the place of safety, and at present the storehouse of a large portion of the instruments employed. The experiments at Sandy Hook will consume several days. The Pittsburgh tests are to begin on Wednesday, Nov. 12, and the commission will proceed from Sandy Hook direct to Pittsburgh. A very large number of experiments with safety valves will also be made at Sandy Hook at the conclusion of the Pittsburgh tests.

The Situation in the Mahoning Valley.

The reports which have gained currency regarding effects of the panic upon the iron industries of the Mahoning and Shenango valleys, have been greatly exaggerated, as we stated in our issue of last week, on the authority of a well informed iron maker of that district. A correspondent of the *Tribune*, writing from Youngstown, Ohio, under date of Nov. 2, says: It is probable that a large portion of the blast furnaces that have ceased operations within the last month would have soon stopped, panic or no panic; with the high price paid for ore and the low price of pig iron that prevailed before, as well as since, the panic, blast furnaces could not be run except at a loss. In the Mahoning Valley, between Warren and Lowell, a distance of 23 miles, there are 21 furnaces, as follows: At Warren 1, Niles 2, Mineral Ridge 2, Girard 1, Briar Hill 4, Youngstown 5, Hubbard 2, Hazleton 2, Struthers 1, and Lowell 1. Eleven of these have stopped, viz.: one at Mineral Ridge, one at Girard, three at Briar Hill, three at Youngstown, one at Hubbard, one at Hazleton, and one at Struthers. The furnaces employ on an average about 80 men each, including those employed in the furnace proper, and in collateral work, such as getting out limestone, etc. This would make about 800 men thrown out of employment by the stoppage of the blast furnaces. There are 13 rolling mills in the valley, employing on an average 300 hands each. Five are located in Youngstown, four at Niles, and one each at Warren, Girard and Hubbard. Only one out of the 13 has stopped, viz: the Valley Iron Company's, which made an assignment on the 1st of October, but is now recovering from its embarrassment, and expects to start its mill again in a week or two. One other mill is working on half time, and several on two-thirds time. The coal mining interest of the valley has suffered more than any other, owing to the stoppage of so many of the furnaces and the stagnation in the coal trade generally. There are, or have been, from 4000 to 5000 men employed in coal mining in the valley, and the estimated product for the year is, 1,200,000 tons. About 2500 of the miners have been thrown out of work. Altogether there have been about 3600 men, including those employed in the mines, furnaces and rolling mills, thrown out of employment in the Mahoning Valley, which has a population of about 60,000. Two or three more furnaces are contemplating an early stoppage, and there has been a general reduction of wages in all the industries of 10 or 15 per cent. The banking facilities of the valley have not kept pace with the rapid growth of its industries, which now show a pay roll of $300,000 per month, against $100,000 in 1864, and $30,000 in 1854. The result has been that employers were unable last month to get currency to pay off their hands, and all of them paid in notes or due bills bearing 8 per cent. interest. These passed current among all shopkeepers for purchases, but the anxiety to get some pocket money induced many of the holders of notes to sell them at a discount, and the note shavers hereabout have done a thriving business in consequence, having bought a large amount of the claims at 20 and 25 per cent. discount. This mode of payment, however, will not be continued to any great extent. Brown, Bonnell & Co., the largest firm in this town, running two furnaces and two rolling mills, paid off all their hands last night in greenbacks, and the others will do the same as their pay days arrive, if it is possible to get the money.

Manufacturing in New England.—The latest accounts from the manufacturing districts of New England report a very general curtailment of operations in workshops and factories. Goodyear's Globe Company, at Naugatuck, have decided to cut down the wages of their employees, or to work them on three-quarters time. The Connecticut Cutlery Company is resuming on half time. The Tuttle & Whittemore Iron Works have discharged a large number of their workmen, and the Union Knife Company have not paid their men in full for a long time. In Middletown the extensive manufactory of Messrs. W. & B. Douglas is running only three days each week. So far as known, there has been no extensive change in the hours of labor, or in the force employed in other manufactories very recently, and all are supposed to be in a sound condition. Business in East Hampton is dull. D. B. Niles & Son have stopped work. Veazey & White have but seven men at work. The East Hampton Bell Company and the Gong Bell Company will stop soon. Bevin Brothers & Co. have stopped one of their fires, and have paid their men for the last quarter one half due them, which is better than some other firms are able to do. The coffin trimming business is near a standstill. The Dunham Manufacturing Company, of Willimantic, commenced running on half time last Monday, and there are no rumors of other changes at present. All the other companies are running full time as usual. The Plymouth clock shops have not been running since Saturday, Oct. 18, and, it is said, are closed for a period of two weeks. In Thomaston, the clock shops have shut down for two weeks; the Plume & Atwood Company are running eight hours; the Woolen Company will not immediately rebuild their burned factory. In Wallingford, the Simpson, Hall, Miller & Co. and the Britannia Works are running full time, and have as many orders as they care to fill. The Stonington Jewelry Company have not reduced their working force, although employed on articles of luxury. The Adams Nickel Plating Company, of South Windham, have increased their facilities, owing to a press of work. In Wolcottville, the Hook and Eye Company and the brass mill are running on half time. The Winslow Williams Mill, at Yantic, is running on half time. In New Milford, 50 hands have been discharged from the button factory. In West Norfolk, the silk mill is still running. Pitkin Bros. & Co.'s Iron Works, at Hartford, are running full time. In New Haven, Harmon, Baldwin & Foy are now running five hours a day. Mallory, Wheeler & Co.'s lock shop is in operation every day, although somewhat reduced in force employed. Atwater's pipe works have plenty of work; the Whitneyville armory is running full time, with a large force; the New Haven Folding Chair Company is running eight hours a day; the large key manufactory of Kellogg & Ives has made several heavy shipments recently, and has orders ahead for all they can do until the 1st of December.

Manufacturing at Cleveland.—Thus far the city of Cleveland has been but little affected by the panic. With the exception of the Lake Shore Railroad shops, where the wages of labor were reduced just before the panic, and a manufactory of lamps, which has reduced time from ten to eight hours a day, there has been scarcely any reduction either of force, wages, or time in the factories and workshops of this city. It is the unanimous opinion of employers, however, that there must be a large reduction, either in wages or hours of employment, within the next thirty days, unless the times improve. The iron business is by far the largest interest here, and in all its branches employs over 5000 men. There are four blast furnaces and seven or eight rolling mills, employing altogether 3000 or 4000 men. The Cleveland Rolling Mill Company's furnaces will doubtless stop very soon, and whether the rolling mills will continue on full force, as at present, depends on the events of the next four weeks. They have a very good class of employees, who are willing to follow the advice of their employers as to a reduction in wages or in time. The pay roll of the Cleveland Rolling Mills amounts to about $90,000 a month, and although the company have had great difficulty in getting currency, they have never failed to pay promptly. Appreciating their embarrassment in this regard, their employees on the last pay day, the 18th of October, voluntarily returned over $20,000 of the money, and took the company's receipts bearing interest. The rolling mills are suffering more from the scarcity of money than other iron manufacturers. The other branches of iron manufacture in Cleveland are very extensive, and include 85 mills and factories making rails, steel screws, stoves, boiler plates, springs, etc. These are all running on the usual time and with very nearly the usual force, though most of them are talking of a reduction soon unless business improves. Their trade is largely with the West, and collections are prompt.

Manufacturing at Paterson.—The manufacturers of Paterson, N. J., though sharing in the general depression, are hopeful of the future. The locomotive building interest is, perhaps, hurt the most. The Grant Locomotive Works, which had already dropped 300 from their 700 workmen, on Friday discharged 100 more, and will continue to drop about the same number each week, as the work now in hand gets finished up, and will cease altogether when everything in the shop is cleared up. They will try to keep in running order as long as possible, so as to be ready for any demand which may arise. They will not, however, work to accumulate more stock. The Rogers Locomotive Works will continue with their present force of 700 until their work is finished up. The future will depend on the orders they may receive for engines. The stoppage of the locomotive works affects many who are not directly connected with them. Beside the large iron works which supply them with partially finished material, boilers, iron plates, etc., there are many smaller works which manufacture brass ornamental work, etc. Then there are the painters, and a long list of artisans, all of whom, in turn, feel the effects of the general stagnation of business. The Pacific Rolling Mills are still running on full time, chiefly on bridge work for the Watson Manufacturing Company. This company has contracts for the new iron bridges on the Erie Railway, and for some other railroads, as well as towns and corporations. The nature of their work is such that it must go on as long as the contracting companies are able to pay for it. Most of the small manufacturers, and many whose production is large and whose works give employment to many workingmen, are prudently reducing their time or temporarily closing. A general desire is manifested to avoid discharging more men than is necessary, and it is not thought that a very large proportion of the skilled labor of the city will be out of employment during the winter.

The Situation in Troy.—A correspondent of the *Tribune* writes as follows from Troy: Mr. Griswold superintendent of the Rensselaer Iron Works, was visited to-day by your correspondent for the purpose of learning of any new developments in the affairs of that company. Mr. Griswold stated that there was utter stagnation of business; that there were no sales and no prices. Work was suspended, as you have been informed, and 300 men discharged a week or more ago. A proposition was made the workmen, however, for the sake of keeping them employed, to resume work at a reduction of 15 per cent. in price of labor. This the puddlers declined to do, and the offer no longer stands open. There is a large stock of iron on hand, so that the disadvantage is on the side of the workmen. The Rensselear Steel Works are running full time, with 250 men at reduced prices. Mr. Griswold regards it as folly on the part of the men in any branch of manufacture, in the present aspect of affairs, to refuse to work, for employers are better off just now without their work than with it. Regarding the stove manufacturers, Sweat, Quimby & Perry, whose annual sales amount to $500,000, have discharged half of their force, and are working the remainder on half time, with little prospect of continuing even at this rate much longer. This is one of the few firms which are accustomed to keep up their molding through the winter. H. & H. S. Church, another stove firm, stopped work to-night for a week or more; while Lane, Gale & Co., manufacturers of butts, have also discontinued work.

Pepper's Silicon Steel.—The tests with the processes of converting wrought iron bars into silicon steel, invented by Mr. Calvin Pepper, which were to have been made this week at the fair of the American Institute, have been postponed, as will be seen from the following letter:

FORTY-SECOND EXHIBITION OF THE AMERICAN INSTITUTE FAIR OF THE CITY OF NEW YORK.

NEW YORK, October 23, 1873.

DEAR SIR: The proposed manufacture of silicon steel from wrought iron, without change of form, which was to have been made on Monday, 27th inst., at 9 o'clock, in the American Institute, has been postponed until a future day, due notice of which will be given.

As the investigation will be thorough in all respects, this delay is essential to make full and complete preparation.

CH. WAGER HULL, General Sup't.

Mr. Pepper claims to produce a true silicon steel by imbedding wrought iron bars in sand and subjecting them to a very high temperature, which causes the metal to part with its carbon in the form of carbonic oxide, and to take up silicon from the sand, thus converting it into silicon steel. This, at least, is what we understand to be his claim, and as he asserts that he has accomplished what he claims, producing a true silicon steel by this method from wrought iron, we are not disposed to quarrel with his theory until we have had opportunity of examining his process and testing the metal produced. We shall have more to say on this subject in a future issue.

Extraordinary Geological Discoveries.—A correspondent of the Evansville (Ind.) *Courier* has made some astonishing discoveries in Dubois county, Indiana, which merit attention. Describing the three coal veins which underlie 400 square miles of the district, he says: "Before reaching the last vein four feet of block lead of the purest quality is found, and immediately under these valuable deposits a four feet vein of plumbago is found in its purest state. Red hematite and kidney iron ore are found in veins twelve to fifteen feet in thickness cropping out among the hills immediately overlooking and surrounding Huntingburg." Had the correspondent looked a little further he would have found a deposit of double eagles with intervening strata of greenbacks. Perhaps he did, as it was, only he omits to mention the fact. A man who discovers a coal measure containing four feet of block lead, four feet of pure plumbago, and twelve feet of red hematite deserves well of the owners of the land. But as there may possibly be some mistake about it, we advise intending purchasers of land in that district not to expect to find more than three feet of block lead, three of plumbago, and ten of red hematite in these coal measures.

Coal in Newfoundland.—Sir Alexander Murray has made the important discovery of an extensive coal field at St. George's Bay, Newfoundland. He has ascertained, beyond all question, the existence of several workable seams of coal of a superior description, the extent of which can only be determined by boring. Much of it appears to be cannel coal, so valuable for the manufacture of gas. One seam is three feet in thickness, and only a few miles from the coast. Mr. Jukes, the eminent geologist, who was so long at the head of the Irish geological survey, visited Prince George's Bay many years ago, and was the first to announce a belief in the existence of a coal field. The coal area he calculated to be "twenty or thirty miles long by ten wide," the tract being "an oval, forming the center of the country, bounded by the seacoast on the north and the ridge of primary hills on the south." He also suspected the existence of salt springs, which Mr. Murray has now found. The importance of a coal field in such a position as this is very great. This, however, is not the only coal region in Newfoundland. On the northeastern shore of Grand Lake are found precisely similar beds to those forming the south side of St. George's Bay. Here the existence of a seam three feet thick is reported, and Mr. Jukes was of opinion that coal may be found over the whole or greater part of this region. It is easy of access from the head of White Bay. Not far from the St. George's Bay coal field is Cairn Mountain, in the neighborhood of which fragments of magnetic iron have been found, leading to the belief that this valuable ore will be found "in place" and in remunerative quantities.

Trade Report.

Office of THE IRON AGE,
WEDNESDAY EVENING, Nov. 5, 1873.

The past week, although perhaps the gloomiest for several years, is not without encouraging indications of a return of confidence and a re-establishment of business upon a substantial basis. The suspension of Hoyt, Sprague & Co., indicating as it did the weakness of the great manufacturing house of A. & W. Sprague, and the uncertainty of the position of H. B. Claflin & Co., who have been compelled to ask extensions of their creditors, gave rise to the gloomiest apprehensiens, and created a general fear of a wide spread commercial panic; but the danger seems to be over in great part, and the belief that we have passed the worst is steadily gaining ground. It is estimated that the amount of currency now in circulation exceeds by at least $50,000,000 the amount in circulation three weeks ago. Millions of gold have come here from the Bank of England, and as the panic began in stringency it will end in greater ease than has been experienced for many months. The suspension of manufacturing operations continues to become more and more general, but instead of adding new complications to the situation, the effect of these suspensions will be to promote ease in money by diminishing the demand for it, and permitting currency to accumulate in the banks. How soon they will find it profitable to resume it is impossible to say, but it will be impossible for them to long remain idle. Before the panic they were doing a profitable business on a sound and substantial basis, and in no branch of manufacture are there complaints of overproduction. It will not take long, even with the most economical consumption, to so far reduce the stocks of staple goods of all kinds now in the market as to necessitate their immediate replenishment, and manufacturers in most branches will have to resume in order to supply the requirements of the spring and early summer trade. The general belief is that with the first of the year we shall enter upon the enjoyment of a general prosperity, and if Congress shall take advantage of the favorable opportunity now offered to so far modify our national banking law as to give us a greater elasticity of bank credits, and a greater amount of currency, if needed, by making banking free to all who wish to engage in it, and who can comply with the necessary and proper regulations to which national banks are now required to conform as the condition of receiving currency, it will be a long while before we have another panic from causes in any respect similar to those which brought about the one through which we have lately passed.

On the first instant the bank discontinued the arrangement for pooling legal tenders, which had been agreed upon as a measure of mutual defense, having gained sufficient strength to enable them to depend upon their their own resources in case of emergency. The banks have now almost $18,000,000 of legal tenders, against $5,820,000 three weeks ago, and are stronger every way. During the week money was lent on call at 7 @ ¼ of 1 per cent. per day, with nominal rates for commercial paper.

The gold market has been heavy, notwithstanding the advance of the minimum discount rate of the Bank of England to 8 per cent., and the premium has fluctuated within very narrow limits. We quote as follows:

	Highest.	Lowest.
Thursday	108¼	108¼
Friday	108¼	108¼
Saturday	108¼	108¼
Monday	108¼	107⅞
Tuesday	—	—
Wednesday	107¼	107

The stock market has also been heavy, and prices have ruled lower than at any previous time during the panic. The principal dealings have been in Lake Shore, Western Union, New York Central, Ohio, Union Pacific and Wabash.

The bond market has been dull, with quotations nominal.

The following shows the imports of foreign merchandise for the week:

	1871.	1872.	1873.
Tot. for week..	$6,485,160	$6,487,635	$4,522,092
Prev. reported..	321,531,550	362,591,104	333,943,923
Since Jan 1...	$328,017,710	$369,078,729	$338,466,015

Included in the imports of general merchandise for the week are:

	Quant.	Value.
Brass goods	3	$495
Bronzes	91	21,251
Chains and anchors	49	2,268
Cutlery	118	39,230
Guns	101	13,359
Hardware	22	2,541
Iron, pig, tons	730	21,561
Iron, sheet, tons	257	41,818
R. R. bars	3,829	82,878
Iron cotton ties	10,000	18,713
Iron tubes	500	796
Iron, other, tons	64	4,784
Lead, pigs	5,402	33,768
Lead, tons	11	1,091
Metal goods	206	29,184
Nails	8	1,039
Needles	4	2,133
Old metals		490
Per. caps	31	3,626
Saddlery	5	1,323
Steel	4,390	28,315
Tin, boxes	14,550	125,627
Tin, 2117 slabs	114,779	32,513
Wire	1,682	10,027

Government bonds closed as follows:

	Bid.	Asked.
U. S. 1881s, reg	111	111¼
U. S. 1881, c.	113⅛	113¼
U. S. 5-20, 1862, reg	106	106⅛
U. S. 5-20 1862, c.	106½	107
U. S. 5-20 1864, reg	106⅛	107
U. S. 5-20 1864, c.	106¾	107
U. S. 5-20 1865, reg	107	—
U. S. 5-20 1865, c.	107¼	108
U. S. 5-20 1865, new, reg.	109	109¼
U. S. 5-20 1865, new, c.	109⅛	109¾
U. S. 5-20 1867, reg	110¾	111
U. S. 5-20 1867, c.	111¼	111¾
U. S. 5-20 1868, c.	111¾	112
U. S. 10-40 c.	106	107
U. S. 5s, of '81, c.	—	107⅛
30 Year Currency Pacifics	109¼	110

The following were the highest and lowest prices of stocks to-day:

	Highest.	Lowest.
N. Y. Cen. & Hudson Consolidated	81	77⅞
Lake Shore	61⅝	60⅜
Rock Island	86⅛	84¾
Del., Lack. and West.	83½	82
Wabash	36⅛	35¾
Harlem	102¾	102⅛
Western Union Telegraph	50	45¾
Northwestern	35	34⅜
Northwestern, Preferred	56⅛	56
Milwaukee & St. Paul	24	23
Milwaukee & St. Paul preferred	46⅛	45
Pacific Mail	27⅜	25⅞
Erie	42⅛	39⅜
Ohio & Mississippi	23¾	22½
Union Pacific	16⅜	15⅜
C. C. & Ind. Central	17⅜	16⅜
Hannibal and St. Joseph	17	16

GENERAL HARDWARE.

There is little change in the condition of trade this week, but the tendency of affairs seems to be in the right direction. Many houses report much better orders, and remittances are generally stated to be increasing. Several concerns that we know of find their business for October to foot up much better than they expected. Prices have been sustained, we believe, better in Hardware than in almost any other branch of trade. No general reduction has been made, and manufacturers seem little disposed to offer their goods at low prices. This is, undoubtedly, the proper course, as buyers could hardly be induced to make larger purchases at this time than they really need. Manufacturers show no signs of accumulating large stocks of goods, and most of them are now running on short time. It is a good indication, however, that Russell & Erwin, who have been running on half time, are now running seven and a half hours a day.

In our English letter will be found some interesting remarks on the statements of letters written to the Sheffield press by Joseph Rodgers & Sons and John Wilson, in answer to some strictures on the manner of manufacturing in vogue in Sheffield, which appeared in one of our recent issues. We have not seen the letter of Joseph Rodgers & Sons. The following is that of John Wilson:

AMERICAN AND ENGLISH MACHINERY.

To the Editor of the Sheffield Daily Telegraph:

SIR—The "American gentleman traveling in England," who has written to *The Iron Age*, I think, deals largely in that commodity for which our American cousins are famous, viz., "buncombe." Of course, all our machinery is inferior to theirs. It is believed that some enterprising Americans contemplate the formation of a limited company at the Falls of Niagara. It is estimated that a number of steam engines, on a larger scale than any yet erected in the "Old World," could lift the mighty columns of water which form that magnificent cascade back again. Utilitarians may ask, "*Cui bono?*" The answer is, simply to run over again. Our "tilt hammers are old fashioned." But from the manner in which he notices the large "metal helve" of Wm. Jessop & Sons, I suppose that is an exception. He says, "About 150 tons of steel are made per week" in this establishment. But then it is "made by the old process." The writer says, "It is claimed by this firm that they make the largest circular saw plates in the world." This, I dare say, is quite true, and not only so, but Messrs. Jessop supply most of the large American saw manufacturers with plates. I speak from personal knowledge when I tell this American gentleman that at the Great Exhibition at Vienna neither America nor any other country in the world exhibit either pit, mill, or circular saws at all equal in size and finish to the saws from Sheffield.

Spear & Jackson and Taylor Brothers exhibit circulars about 87 inches diameter. Both their plates were rolled by Jessop's. If they did this by the "old process" it is very likely that they will continue that until the Americans by a new one can show something better. The writer thus describes Messrs. Rodgers & Sons: "We visited Rodgers' cutlery works, a large establishment employing 1000 men. They pride themselves on the age of their establishment, and on the fact that they do not use improved machinery. In fact they discountenance the use of machinery, except for a few simple operations, such as sawing, grinding, &c. I believe this firm take an especial pride in the excellence of the articles they manufacture." This, however, is a very different thing from "priding themselves on the fact that they do not use improved machinery." It is wonderful if the establishment of Rodgers & Sons has grown to its present dimensions, and maintained its high reputation, by obstinately keeping behind the age. This "intelligent traveler" says: "It is certainly amusing to see two men at a fire in a room not larger than a good-sized horse stall, with one anvil, making a knife blade in the same manner and with the same implements as their fathers did. Their dies forming the shank of the knife, are laid upon the anvil, and while one holds the knife and strikes the blow the other holds the upper die, the operation requiring minutes, while one man, with a common drop-press, would perform the same in a few seconds and do it equally well." The writer is probably one of those knowing persons who calls all changes improvements. The question may be pertinently asked: Are the Americans beating us on our own soil? Joseph Rodgers & Sons, with their foolish "objection to machinery and their pride in the old-fashioned process, do a profitable business in the United States. Their last year's dividend was 15 per cent., and a very large addition to the reserved fund, the present market price of their £100 shares being £202 to £207. This is not amiss for an "old fashioned process." As a contrast to this, the firm of John Russell & Co. (the Russell Knife Company) has not declared a dividend for four years. The Meriden Company, and Landers, Frary & Clark, New York, have made one only during that period. About the end of April this year John Russell & Co. "went down" with liabilities amounting to $800,000, and only $200,000 assets. This company, whose praises have been sung *ad nauseam* by *The Iron Age*, has been transferred to a new proprietary at a cost of 3/6 in the pound. This does not speak very highly for "American machinery." Let it not be thought that I for one moment object to machinery. Our old staple trades are to a great extent "handicrafts," and at present machinery has not displaced hand labor. During the present summer I accompanied Mr. R. T. Buck, the celebrated edge tool manufacturer, of Millbury, Mass., through the works of Messrs. Rodgers & Sons. That gentleman remarked that the method of forging razors was behind the age; but, in answer to my inquiries, he could not tell me the name of a successful razor manufacturer in America. I have had better opportunities than most persons of acquiring information on these subjects. In my report on the Vienna Exhibition, which will be published in a few days, my opinions are more fully expressed. JOHN WILSON.

Andover street, October 17, 1873.

We have here only space to remark that the John Russell Mfg. Co. had a surplus of assets over liabilities of $213,000 at the time of its reorganization, the full particulars of which will be found in our issues of last May; that both the Meriden Cutlery Co. and Landers, Frary & Clark have, according to our information, made more than one dividend in the period of four years; and, finally, that the praises of the John Russell Mfg. Co. were never "sung *ad "nauseam* by *The Iron Age*."

Fisher & Norris, Trenton, N. J., in consequence of the recent reduction in the cost of material, have adopted the following reduced list for their Eagle Anvils:

Anvils weighing 100 to 800 lbs.....11c. per lb.
Smaller Anvils "Minims."

No.	0	1	2	3	4
About 10 lbs.	15 lbs.	20 lbs.	30 lbs.	40 lbs.	
	$3·90	4·25	5·00	5·50	6·50
No.	5	6	7	8	9
	50 lbs.	60 lbs.	70 lbs.	80 lbs.	90 lbs.
	$7·50	8·00	9·00	10·00	10·50

The discount from these goods, viz., 15 @ 15 and 5 per cent., remains as before.

The following are the revised discounts adopted by the Wrought Iron Manufacturers' Association at a recent meeting, and which went into effect on the 1st instant. The list remains as before. From these discounts an extra 10 per cent. will be allowed on all bills paid by the 15th of the following month:

	Dis. per cent.
Wrought Rolled Eye Plate Hinges	60
Wrought Rolled Eye Raised Plate Hinges	60
Wrought Welded Eye Plate Hinges	33⅓
Wrought Welded Eye, Raised Plate Hinges	33⅓
Wrgh't Rll'd Eye Plate Hinges with Drive H'ks.	33⅓
Wrgh't Wld'd Eye Plate Hinges with Drive H'ks.	33⅓
Small Wrgh't Rll'd Eye N. Y. City Blind Hinges	net
Large Wrgh't Rll'd Eye N. Y. City Blind Hinges	40
Large W't Welded Eye N. Y. City Blind Hinges	40
Heavy Wrought Welded Eye Hook Hinges	net.
Heavy Wrought Welded Eye Wood Screw Hook Hinges	net.
Heavy Wrought Welded Eye Plate Hook Hinges	30
Heavy Wrought Welded Eye Raised Plate Hinges	30
Wrought Barn Door Hook and Eye Hinges	33⅓
Light Wrought Welded Eye T, or Trap Door Hinges, 3-16 Iron	35
Heavy W't Welded Eye T, or Trap Door Hinges, ¼ Iron	35
Heavy Wrought Welded Eye Strap Hinges	25
Wrought Scuttle Door Hinges	25
Wrought Staples. None but best Wire used	60
Wrought Staples	60
Wrought Hooks and Staples	60
W't Goose-neck Hooks and Staples, Japanned	60
Wrought Hooks, with Plate Staples	60
Wrought Plate Staples	60
Wrought Hasps and Staples	60
Heavy Wrought Hasps and Staples	60
Extra Heavy Wrought Hasps and Staples	60
W't Hasps and Staples with Right and Left H'ks.	60
Heavy Wrought Hasps and Staples, with Right and Left Hooks	60
Extra Heavy Wrought Hasps and Staples, with Right and Left Hooks	60
Wrought Bent Hasps and Staples	60
Heavy Wrought Welded Joint Hasps, with Plate Staples	60
Wrought Cellar Door Batten Hasps	60
Extra Heavy Store Door Hasps, with Eye Bolts	60
Extra Heavy Store Door Hasps, with Key Cover and Eye Bolts	60
Awning Hooks	60
Wrought Flat Store Door Bolts, 1¼ in. Plate	30
Wt. Flat Store Door Bolts, 1¼ to 1¾ in. Plate	30
Wt. Flush Store Door Bolts, 1 in. Plate, Brass Box	30
Wrought Flush Store Door Bolts, 1¼ in. Plate, Brass Box	30
Wrought Flush Store Door Bolts, 1¾ in. Plate, Brass Box	30
W't Flush Store Door Bolts, 1¾ in. Plate, Brass Box	30
Wt. Flush Store Door Bolts, 1¾ in. Plate, Brass Box	30
Brass Flush Bolts	35
Ex. Heavy Wrgh't Flat Shutter Bolts, Japanned	25
Malleable Iron Inside Shutter Bars	25
Brass Inside Shutter Bars	25
Light Wrought Bar Staples for Store Doors	30
Heavy Wrought Bar Staples for Store Doors	30
Mackrell's Malleable Iron Fancy Oval Blind and Shutter Fastenings	30
Mackrell's Brass Fancy Oval Blind and Shutter Fastenings	25
Mackrell & Richardsons's Old Pattern Blind and Shutter Fastenings, Brass Catch, Steel Spring and Wrought Plate	20
Wt. Blind and Shutter Fastenings, Van Sand Pat'n	20
Van Sand Patent Blind and Shutter Fastenings to Screw in, net cash	5
Wrought Turn Buckles, for Wood or Brick	20
Japanned Drops and Pins, Malleable Iron	30
Wrought Blind Catches for Wood or Brick	20
Wrought Blind Springs	20
Light Wrought Corner Irons for Shutters, not filed	50
Light Wrought Corner Irons for Shutters, filed	50
Heavy Wro't Corner Irons for Shutters, not filed	50
Heavy Wrought Corner Irons for Shutters, filed	50
Wrought Trap Door Rings	60
Wrought Trap Door Rings, with Staples	60
Wrought Flush Trap Door Rings	60
Wrought Gate Latches	40
Catches for Wrought Gate Latches	40
Staples for Wrought Gate Latches	40
Wrought Gate Latches, complete	40
Wrought Spring Gate Latches, Japanned	30
Heavy Wrought Gate Handles	30
Cast iron Spring Gate Latches, Japanned	25
Heavy Wrought Round Gate Bolts with Hasps, Complete, Japanned	30
Wrought Blacksmith Pincers	30
Wrought Blacksmith's Tongs	30
Wrought Blacksmith's Butterises, Japanned	30
Wrought Blacksmith's Shoeing Hammers	30
Blacksmith's Tweers, Duck Nest	10
Monitor Tweer Iron	net
Wrought Meat Hooks to drive	60
Wrought Meat Hooks to drive, Tinned	60
Wrought Meat Hooks to screw in or on, Tinned	50
Ex. Heavy Wt. Meat Hooks to screw on, Tinned	30
Wrought Horse Hooks, with Rings	40
Wrought Hitching Rings to screw or drive	40
Wrought Lap Links for Repairing Chain	60
Wrought Lap Rings for Repairing Chain	60
Wrought S Hooks for Repairing Chain	60
Wrought Leader Hooks	30
Wrought Jamb or Sign Hooks	30
Wrought Step Ladder Hooks	30
Wrought Well Hooks	25
Wrought Cistern Hooks	30
Wrought Glass Hooks, assorted	25
Wrought Gas Pipe Hooks	25
Wrought Holdfasts	25
Wrought Nail Claws	30
Wrought Nail Grips	30
Light Wrought Box Chisels, Japanned	35
Heavy Wrought Box Chisels, Japanned	35
Cast Steel Flat Box Chisels	35
Steel Nail Sets	30
Cast Steel Cold Chisels	50
Cast Steel Oyster Knives	25
Forged Hinge Rivets ¼ inch Iron	60
Forged Hinge Nails, ¼ inch Iron	60
Forged Hinge Rivets, 3-16 inch Iron	60
Forged Hinge Nails 3-16 inch Iron	60
Forged Wagon Nails	60
Wrought Wagon Body Staples	60
Wrought Ice Tongs	60
Wrought Pot Bales	30
Wrought Jointed Pot Bales or Hooks	30
Wrought Foot Scrapers	25
Wrought Ox Yoke Rings and Staples	25
Wrought Beetle Rings	25
Wrought Iron Wedges	40
Wrought Drag Teeth	40
Four Pronged Bed Keys	7⅛
Z Pattern Bed Keys	7⅛
Gate Balls and Dumb Bells	7⅛
Gate Balls with Chain	net
Quoits, Japanned	7⅛
Wrought Swivel Bars	30
Brass Shutter Screws	20
Dish Foot Scrapers, Japanned	20
Window Pulleys, Solid Frames and Wheels	30
Champion Noiseless Window Pulleys	30
Champion Chain Pulleys, Square Groove	net.
Dumb Waiter Pulleys	30
Dumb Waiter Pulleys, Japanned	30
Yard Line Pulleys	60
Wrought Stair or Hand Rail Braces	40
Wrought White Wash Brush Clamps	net
Stair or Hand Rail Screws	40
Blacksmith and Farriers' Tools; Toe Knives; Handled Cutting Chisels, Solid Cast Steel; Anvil Hardies, Solid Cast Steel	7⅛
Post Hole Augers	25

There is little, if any, improvement to notice in the demand for foreign Hardware. Out of town buyers are a rarity, and letter orders are confined to small lines for actual present necessities of the trade. Prices continue firm, and we hear of no tendency to force sales; on the contrary, the general tone of the market is decidedly in favor of holding stocks (which are far from heavy) for a fair remuneration.

There is a noticeable improvement this week in the demand for Nails, and a good many small orders, with a few of fair magnitude, have been placed. The card rate, viz., $4·75, must be regarded as only nominal, although it is still the asking price for small lots. Orders under 100 kegs can be easily placed at $4·50, net, for 10d., and there is no doubt that this figure can be shaded for lots of 100 kegs and over.

Trade in Tinners' Trimmings and House Furnishing Goods shows little sign of improvement, and the general tone of the market is weak. As we have before mentioned, leading goods have been offered at unremunerative prices, and, in the absence of demand, it is difficult to arrive at better than nominal figures. We quote Common Cannisters, 1 lb, $1·20; 2 lb, $1·70 per doz., net; Round Cake Boxes, $3·40 per nest, and Square Cake Boxes, $3·40 per nest, net. Japanned Candlesticks, No. 1, $6, and No. 2, $5.50 per gross, net, quantity price; for small lots and broken packages an advance of 5 @ 10 per cent. on these figures is the general asking price. There is a fair demand for Russia Sheet Iron, which is quoted in this market at the following figures, currency: Nos. 8 to 11, per lb., 21 cents; Nos. 12 to 16, per lb., 20½ cents, and Stained, No. 1, per lb., 19 cents.

IRON.

American Pig.—There is very little trade doing in any description of American Iron, and prices continued depressed, and still tending downward. Six more furnaces have blown out, making in all 18; and preparations are being made to do the same with others. We quote: No. 1 at $35 @ $38; No. 2 at $30 @ $32, and Gray Forge at $25 @ $27. These must be considered, however, more or less nominal figures.

Scotch Pig.—The market for Scotch Iron presents a trifle more favorable appearance. The foreign advices continue to indicate light stocks, and no indications of any reduction in values. Stocks cannot be replaced by importations, as ruling prices are far below the cost of laying Iron down here. The supply here, though ample to fill the present light demand, is not excessive. Taking all these considerations into effect, holders do not appear disposed to force their stocks on the market. Eglinton is scarce, and held firmly at $38 @ $39. Glengarnock quoted at $39 @ $40. Coltness held at about $45. Sales have taken place of 400 tons Glengarnock, on private terms.

Following are the prices of Scotch Pig Iron in Glasgow, as reported by Messrs. J. E. SWAN & BROS., under date of Oct. 24:

	No. 1	No. 3	No. 4
Gartsherrie	127/6	118/	....
Coltness	127/6	120/	....
Summerlee	120/	115/	117/6
Langloan	125/	118/	....
Govan	116/	114/	115/
Calder	*122/6	117/6	....
Shotts, Bessemer	160/	155/	....
do Ordinary	125/	117/6	....
Carnbroe	119/	116/	118/
Wishaw	116/	114/	115/
Monkland	116/	114/	....
Chapelhall	120/	....	....
Clyde	116/	114/	115/
Quarter—Clyde	116/	114/	115/

Glasgow Warrants 3-5, No. 1; 2-5, No. 3, g. m. b. 113/9.

*f. o. b. Glasgow, 1/ per ton, extra.

WEST COAST BRANDS—*f. o. b. Ardrossan.*

Glengarnock, Ardeer, Eglinton, Lugar, Muirkirk, Portland,	Branded Eglinton	120/	116/ ....
	Branded Eglinton	119/	116/ 118/
Dalmellington		119/	117/ 113/

CURRENT RATES OF FREIGHT ON PIG IRON.

To	From Glasgow.	From Ardrossan.
New York	7/6	7/6
Boston	17/	17/
New Orleans	20/	20/
Baltimore	17/	17/6
Philadelphia	16/	16/
Providence	20/	15/

Bar.—The demand for Refined from store continues limited to such small parcels as are urgently required, and prices remain nominally about the same.

Old Rails.—There is very little, if anything, doing in Old Rails, and prices are wholly nominal, at, say, about $39 @ $40 for T and Double Head. Sales are reported, however, of 150 lots T, at $38.

New Rails.—The market for New Rails also continues exceedingly dull. We quote nominally about $60 @ $62, gold, for English, and $68 @ $70, currency, for American.

Scrap.—The demand for Scrap is exceedingly light, and sales small and unimportant. From yard, $38 @ $40 is about the asking price.

METALS.

Copper.—Ingot continues to decline, but without resulting in stimulating the demand. Buyers only take the smallest possible quantities to fill urgent requirements, which they are enabled to obtain at about their own figures for cash. The transactions during the week reach about 200,000 lbs. of Lake, in lots, at 21c. @ 22½c., mostly at the lowest figure toward the close. Manufactured Copper is exceedingly dull, and as no official change has been announced, prices are quotably the same, though they must be considered entirely nominal. We quote at 36c. for New Sheathing, 40c. for Braziers, 45c. for Nails, 20c. @ 21c. for Old Sheathing, 26c. for New Yellow Metal Sheathing, 32c. for Bolts, and 27c. @ 30c. for Nails, Sheathing and Slating. Bolt Copper, 40c.

Tin.—The Pig Tin market continues exceedingly dull, and in the absence of demand prices are wholly nominal. We quote about: Straits, 28½c. @ 29½c.; English L. and F., 27c.; English Refined, 28c.; and Banca, 33c., all gold. Tin Plates have become somewhat reduced in stock, and values show a trifle more steadiness. We quote: Charcoal Tin, $9·50 @ $10; Coke Tin, $7·25 @ $8; Charcoal Terne, $9·50 @ $9·75; and Coke Terne, $7 @ $7·75.

Lead.—The demand continues very light for foreign and domestic Pig Lead. Holders, however, are pretty firm in their ideas, and generally ask a slight advance, owing to advices of a further appreciation abroad. We quote: German and Spanish ordinary at 7c.; English, 7c.; foreign refined, 7¼c. @ 7½c., and domestic, 6¾c. @ 6⅞c., all gold. Manufactured Lead is quiet and unchanged. We quote Bar at 9½c.; Sheet and Pipe at 10½c., and Tin Lined Pipe at 16½c., less the usual discount to the trade.

Spelter and Zinc.—Only small lots of Spelter are moving, and prices remain about the same. We notice sales of about 15 tons Silesian at 7⅛c. @ 7¼c., gold, and 40 tons domestic at 8 1-16c. @ 8⅛c., currency. Sheet Zinc from agents' hands is nominally held at former figures, being 10c., less 4 per cent., gold, though lots from dealers are obtainable less. Sales 10 casks at 8⅝c net, gold.

Antimony.—Regulus continues very quiet, and sales are only in small parcels, at 13c., gold.

PHILADELPHIA.

Messrs. BLAKISTON & COX, Iron Merchants, 333 Walnut street, under date of Nov. 5, 1873, report as follows: *American Pig.*—We give you the prices held by makers of both Lehigh and Schuylkill brands, delivered free in this market. No. 1 Foundry, at $35 to $38; No. 2 Foundry, at $30 to $32; Gray Forge, at $29; White and Mottled, at $26. The sales the last week embrace 100 tons No. 1, at $37; 450 tons Gray Forge, at $29·50, delivered here, for cash. We hear of offers from one of our largest manufacturing concerns near the city, to buy their supply of Foundry Irons for 1874, on the basis of $35 for No. 1, and $33 for No. 2. The rolling mill grades are selling close together, Gray Forge commanding but little more than Mottled. Having stated in previous letters the state of the market here, which has not changed and now, in the absence of inquiry, with aught else but dullness, there is little to remark. *Scotch Pig* is quiet, selling in a small way at cash prices, which are nominal. *Scrap* is in fair demand, and is held at, for No. 1 Wrought, $41; Cast sells at from $26 to $30. *Bar Iron* is very dull of sale, there being no inquiry from the stores, while prices, although held at 3 6-10, are weak and likely to fall, if business does not get better. The mills are in a bad way, running on short time, or not running at all.

PITTSBURGH.

PITTSBURGH, Nov. 1.—General business, while it is by no means active or all that could be desired, is, nevertheless, about all that can reasonably be expected under existing circumstances; if anything, the feeling, particularly among our manufacturers, is more hopeful than it was a week ago. It is true, nearly all our manufacturing concerns have been obliged to curtail their business largely. In consequence of the stringency in money matters; many of them have reduced their force, others have cut down wages, and others again have reduced the hours of labor from one to two hours per day, and pay accordingly, but as yet very few have shut down altogether. However, if the banks do not commence discounting soon, it is probable that some of our largest concerns will be forced to succumb, as without the assistance of the banks they will not be able to raise currency sufficient to pay their employees. It is true money can be obtained on the street, but it is held at rates that no ordinary business man can afford to pay—say, from one to two per cent. per month, and many of them, before they will stand such a shave, will shut down. However, the feeling prevails that the worst of the panic is over; that money will soon be easier, and some firms report that their collections within the past week have been more satisfactory. The dead lock in Pig Iron trade still continues; business is, to use a common phrase, as "dead as a door nail;" there is no demand worthy of the name, consumers are virtually out of the market, and there is not enough doing to establish rates. Prices are weak, and, in sympathy with everything else, are shrinking, but some intelligent and well informed operators are inclined to the belief that prices have about reached the lowest point, and they base this belief mainly on the ground of a large falling off in the production. It is said that a large number of furnaces have blown out already, as present rates scarcely cover first cost, and as there is not much prospect of an advance, it is thought that others will have to do likewise. Trade, so far as the producing interest is concerned, has been exceedingly hard all the year, for while the product has dropped from $15 to $20 per ton, as compared with the highest point, the cost of making has undergone but little change. Choice Red Short Mill Irons are quoted nominally at $31 to $32, 4 mos., with rumored sales of some few small lots at $27 to $28, cash. Foundry Irons are also away down, and exceedingly dull, and sales of No. 1 are reported as low as $31 to $32, cash. These are low rates, but some of the furnace men are so pressed for money that they are obliged to sell, and consequently the buyer who has the ready money is in a position to dictate his own terms. The market for finished Irons has undergone but little change during the past week, with the exception that a better feeling seems to prevail. Some firms who were despondent a week ago, and were apprehensive that they might be obliged to shut down altogether, report that orders, while they are mostly small, have commenced to come in more freely, and, what is better still, that their collections, particularly in the West, were more satisfactory. The mills are all, or nearly all, running on orders. Makers are all determined not to work up any stock, and the probability is, in the event of orders slacking off, which is not expected, that the mills would shut down in preference to increasing stocks. Prices remain unchanged; 3 3-10 is the card for Bars, but 3 cents to 3 1-10 is the selling rates, usual time, with, as might be expected, an unusually heavy discount for cash. The Nail trade is moderately active, though orders have commenced to fall off, as they usually do at this season of the year. No change to note in prices, but the tendency is downward; may be quoted at $4, net cash, $4·25, usual time. Stocks, both in first and second hands are still reported light, and it seems to be the policy of both makers and jobbers to carry just as little stock as they possibly can for the time being. The steel mills are still in operation, though they are not, by any means, working up to their full capacity; however, business is about all that can be expected, and prices are maintained. Stocks of Window Glass are getting very low, and some of our manufacturers, unless they start up their factories in the meantime, will soon be unable to fill orders. This being the case, the market is stronger and discounts are being reduced. The Petroleum trade continues in a very healthy shape, particularly as regards refining, and bids fair to continue so during the balance of the year. Many of our refineries have not been idle since they started up last January. Some of them are now sold up until January next, and what is better still, they have had a very good margin. Unlike other branches of business, it was but little affected by the panic, and, if anything, it is even in better condition now than it was before the financial troubles set in. The receipts of Crude at this point from the 1st of January last up to date were about a million and a half of barrels, while the shipments of Refined eastward are something like 100,000 barrels in excess of the corresponding time last year. As an article of light it has no competitor, and it is finding its way to all parts of the civilized world. Spang, Chalfant & Co. are building a new rolling mill near Sharpsburg. It will be constructed entirely of iron, and will be supplied with all the latest appliances and improvements. The report in regard to all the furnaces in this county having suspended operations was not correct. They are nearly all in operation, notwithstanding the depressed and unsatisfactory condition of the market for the product. The Jacobus & Nimick Mfg. Co. are still running full time and full handed. They report that, notwithstanding they have withdrawn their agents, they are getting orders sufficient to keep them busy.

The Pittsburgh *Commercial* of November 1 says: We can learn of no transactions in Pig Iron since our last report. The fact is, there is no demand, and not likely to be any while trade remains as now. Consequently, there is no market price. How long the market will remain in the present unsettled state is more than we can tell. One thing is very certain—an improvement would be both acceptable and beneficial.

BOSTON.

Messrs. MACOMBER, BIGELOW & DOWSE, 42, 44, 46 and 48 Batterymarch street, write us as follows: We report a quiet market, although the sales for October equal the anticipations of most jobbers. New England trade is about over, and appearances would indicate a very dull winter, especially if the factories close or run on the smallest possible time, as is now talked of. Still, the jobbers are in good condition, with light stocks, and buying only to keep up the assortment. The consequence will be, if matters get settled, that we shall have an active market later in the season, with small stocks to meet the demand. This would be desirable, as the tendency would be to get better prices, with no disposition to cut, a state of affairs that would be pleasant, and somewhat different from the past season. It is also to be hoped, in this dull state of trade, that the manufacturers will not force their goods on the market at reduced prices. This will do no good, as the jobbers will purchase no more than they actually require, and the reduction of current prices will only unsettle still more the present unpleasant state of business. They had better remain quietly at home, and be content with their mail orders that they will receive

to patch up assortments. We have but little to say about remittances. October shows a decided improvement over September, and we trust November will tell equally as good a story. It is a duty, more than ever now, to pay as rapidly as possible, and if this was fully realized matters would soon get regulated. We hope the worst has passed, and we feel that the lesson learned will be worth its cost, if a proper regard is paid to its teachings. The tendency seemed to be gaining strength to lengthen credits, but we think the jobbers will see the importance of making a cash basis their only terms. Buying, as we are compelled to do, for cash, necessarily demands that our sales should be made for cash only.

BOSTON, Nov. 1.—The demand for Bar Iron is quiet, as no one desires to anticipate his wants. There is no change of importance in prices, though low grades of American Bar have been sold as low as $60 to $62. First-class Irons of English and American makes bring better prices. Pig Iron is dull, and prices of both American and Scotch are easier. We quote yard lots of American Pig Iron at $40 to $48 per ton, including No. 2 extra at $35 to $40, and No. 1 at $41 to $45. We quote Eglinton at $47, Coltness at $54, Glengarnock at $48, Charcoal at $60 to $70.—*Com. Bulletin.*

LOUISVILLE.

Mr. GEO. H. HULL, under date of Nov. 3, writes us as follows: Market dull and lower; quotations on some grades must be regarded as nearly nominal. Sales are confined to small lots for immediate use. A considerable concession is made on cash sales. The usual time, four months, is allowed on quotations below:

HOT BLAST CHARCOAL.

No. 1 F'dry, from Hanging Rock Ores.	$45·00	@ 46·00
" 2 " " " " ..	38·00	@ 40·00
" 1 Forge, " " " ..	33·00	@ 34·00
" 1 F'dry, from Tennessee Ores.....	43·00	@ 44·00
" 2 " " "	37·00	@ 38·00
" 1 Forge, " "	33·00	@ 34·00
" 1 F'dry, from Alabama Ores.	45·00	@ 46·00
" 1 " " Iron Mountain Ores.	46·00	@ 47·00

HOT BLAST STONE COAL.

No. 1 F'dry, from Missouri Ores.....	42·00	@ 43·00
" 2 " " " " ..	35·00	@ 37·00
" 1 Forge, " " " ..	32·00	@ 33·00

COLD BLAST CHARCOAL.

Car Wheel from Hanging Rock Ores..	60·00	@ 62·00
" " Tennessee Ores.....	58·00	@ 60·00
" " Alabama Ores.....	60·00	@ 62·00
" " Georgia Ores.....	60·00	@ 62·00
" " Missouri Ores.....	58·00	@ 60·00
" " Kentucky	56·00	@ 62·00

CINCINNATI.

Messrs. ADDY, HULL & Co., under date of Nov. 3, write us as follows: The market is in about the same condition as last reported. Demand very light and prices still weakening. Quotations nominally unchanged:

HOT BLAST CHARCOAL.

Hanging Rock No. 1..₱ ton..	$45·00 @ ..	—4 mos.
" " No. 2.....	43·00 @ 44·00	—4 mos.
" " Forge.....	35·00 @ ..	—4 mos.
Tennessee No. 1.....	44·00 @ ..	—4 mos.
" Forge.....	35·00 @ ..	—4 mos.
Alabama No. 1.....	44·00 @ 45·00	—4 mos.
Missouri No. 1.....	45·00 @ 46·00	—4 mos.
" No. 2.....	43·00 @ 44·00	—4 mos.

HOT BLAST STONE COAL.

Missouri No. 1..... ...₱ ton..	$43·00 @ ..	—4 mos.
" Forge.....	34·00 @ ..	—4 mos.
Ohio No. 1.....	42·00 @ ..	—4 mos.
" Forge.....	30·00 @ 33·00	—4 mos.
Scotch Pig, No. 1.....	..	

COLD BLAST CHARCOAL.

Hanging Rock Car Wheel ₱ tn.	$60·00 @ 66·00	—4 mos.
Missouri " "	59·00 @ 60·00	—4 mos.
Kentucky " "	62·00 @ 65·00	—4 mos.
Tennessee " "	58·00 @ 60·00	—4 mos.
Georgia " "	60·00 @ 62·00	—4 mos.
Alabama " "	60·00 @ 62·00	—4 mos.
Machinery and Forge.....	55·00 @ 57·00	—4 mos
Blooms.....	105·00 @ 110·00	—4 mos

BALTIMORE.

Messrs. WYETH & BROTHER, Iron and Steel merchants, corner of South Charles and Lombard streets, report us the following prices under date of Nov. 4, 1873: Trade still continues very much depressed, with but little desire to push sales, owing to difficulty in making collections. Quotations are nominal and weak, with light stocks:

AMERICAN REFINED BAR IRON.

1 to 6 wide by ⅜ to 1 thick....	3¼c. to 4c. per lb.
1 to 4½ wide by 1½ to 2 thick..	
Round and square, ordinary sizes, from ⅜ to 2 inclusive.....	3½c. to 4c. "
Hoop Iron, 1½ wide and upward...	5¼ to 5½c. per lb.
Band Iron, from 1¼ to 4 in. wide..	4¾ to 4¾c. "
Horse Shoe Iron ¾ to 1 wide by ⅜ to ½ thick.....	5 to 5½c. "
Norway Nail Rods.....	8¼ to 8½c. "
Black Diamond Cast Steel, Flats, Squares and Octagon, ordinary sizes.....	16½c. "
Machinery Steel.....	11½c. "
Cast Spring Steel.....	11c. "
Homogeneous Steel Plate.....	13c. "
Perkins' Horse Shoes, per keg of 100 lbs.....	$6·37½
" Mule Shoes " "	7·37½

Common Horse Nails, from 14c. to 18c per pound.

10	9	8	7	6
Putnam Horse Nails. 23	24	25	26	28c. per ₱.
R. R. Spikes.....5½ by 9-16 at 4½c. to 5c per lb.				

IMPORTATIONS.

Of Hardware, Iron, Steel and Metals into the Port of New York, for the week ending November 4, 1873:

Hardware.

Boker Hermann & Co.
Mdse. pkgs., 5
Barton, Alexander & Waller.
Mdse. pkgs., 6
Freidricks Robt.
Casks, 20
Folsom H. & D.
Arms, cs., 9
Field A & Co.
Mdse. pkgs., 28
Fougera E. E.
Per. caps, cs., 9
Hilger E. & Sons.
Mdse. pkgs., 7
Harmar Wm. & Co.
Mdse. pkgs., 4
Harmar, Hayes & Co.
Mdse. pkgs., 3
Lau & Garlichs.
Mdse. pkgs., 1
Lissauer & Co.
Cases, 1
Moore's J. P. Sons,
Arms, cs., 7
Robbins C. & Son,
Mdse. pkgs., 2
Schoverling & Daly.
Mdse. pkgs., 9
Sawyer John,
Wire rope, coils, 10
Trippett J. & Bros.
Per. caps, cs., 9
Van Wart & McCoy,
Mdse. pkgs., 15
Western Union Tel. Co.
Wire, lots, 223
Ward A.
Mdse. pkgs., 3
Witte John G. & Bro.
Mdse. pkgs., 5
Order.
Wire, bdls., 114

Iron.

Crocker Bros.
Pig, tons, 17½
Drexel, Morgan & Co.
R. R. bars, 317
Henderson Bros.
Pig, tons, 300
Jarvis Geo.
Rails, 39
Jackson & Chace,
Mdse. pkgs., 1
Lang W. Bailey & Co.
Mdse. pgks., 44
Lawton & Lenox,
Bale ties, lots, 189
Laughland & Co.
Haybands, bdls., 703
Morton, Bliss & Co.
Rails, 818
Naylor & Co.
Bundles, 2216
Bars, bdls., 5532
Rails, 777
Fish plates, bdls., 480
Salomon A. H. & Co.
Barrels, 4
Scrap, pcs., 59
Order.
Bundles, 153
Without bills of lading.
Pig, tons, 200

Steel.

Agostini.
Scrap, copper, bbls, 1
Brown, Shipley & Co.
Lead, pcs., 1000
Brown Wm.
Bundles, 227
Cases, 15
Drexel, Morgan & Co.
Rails, 289
Disston H. & Sons,
Mdse. pkgs., 1
Frith Edward,
Mdse. pkgs., 1
Giles L. & Co.
Lead, pigs, 490
Naylor & Co.
Tires, 24
Rails, 431
Prosser Thos. & Son,
Pieces, 190
Mdse. pkgs., 43
Violer L. W.
Springs, cs., 12
Order.
Spring, lots, 1
Bundles, 200
Cases, 14
Bars, 50

Metals.

Baring Bros. & Co.
Lead, pigs, 2000
Byrne Joseph,
Tin plates, bxs., 500
Dickerson J. S. & Co.
Tin plates, bxs., 1019
Tin, ingots, 317
Harley Geo.
Copper, pkgs., 20
Lamarche R.
Zinc, cks., 119
Phelps, Dodge & Co.
Tin plates, bxs., 6193
Pope, Cole & Co.
Copper, pcs., 27
Rivera J. de & Co.
Scrap, copper, pkgs., 22
Salomon A. H. & Co.
Scrap, bbls., 1
Order.
Tin, ingots, 600; bbls, 7
Tin plates, bxs., 265

FOREIGN.

GREAT BRITAIN.

Messrs. J. Berger Spence & Co., London, Glasgow and Manchester, under date of Oct. 25, 1873, report:

Metals.—The continued advance in the value of money has had a depressing effect on this market, and the symptoms of activity lately discernible have entirely disappeared, and are now succeeded by a dull feeling, which in the Iron trade is intensified by the high rates which are now payable by manufacturers, both for fuel and labor. Scotch Pig Iron Warrants are a little lower than at the date of our last circular, and this fall may perhaps be attributed to the additional one per cent. in the bank rate, as the shipments for the past week amounted to 12,689 tons, and are again in excess of those during the corresponding week in last year. Middlesborough Pig Iron remains unaltered, but the demand is not quite so brisk as usual. Orders for Manufactured Iron do not come up to the average, and unless some change for the better takes place, which at present appears improbable, it is likely we shall have a dull winter's trade. Copper remains at about the same value, but there is not very much doing either in English Manufactured or Chili Bars at present. For Tin the inquiry is languid and prices are drooping. Lead is now the exception in Metals, as orders are numerous, and smelters so fully occupied that it is difficult to supply the wants of consumers. Prices, as a consequence, are very firm. There is a fair business doing in Spelter at full rates.

IRON—"Ayresome" Yorkshire Pig Iron, No. 1, 107/6; No. 2, 102/6; No. 3, 100/; No. 4 (Foundry), 98/6; No. 4 (Forge), 97/6 net cash, or 2/ extra 4 months' bills. Scotch Pig warrants, 113/ to 114/. Staffordshire Bars, £12. 10/ to £14. Hoop Iron, £13. 10/ to £14. Gas Tubes, 50 per cent. off new list. Boiler Tubes, 17½ per cent. discount.

COPPER.—English Tough Ingot, nominal, £92 to £94. Chili Bars, £83. 10/ to £85.

TIN.—English Ingot, nominal, £126 to £128. Straits, £123 to £125.

TIN PLATES.—Best Coke, I. C., 32/ to 35/; Charcoal, I. C., 36/ to 40/ per box.

LEAD.—Best English Soft Pig, £23. 15/ to £24. 10/. Refined Red Lead, £26 to £27.

ANTIMONY.—French Star, £59 to £60.

SPELTER.—Silesian, Special Brands, £27 to £28. English, Best Brands, £27. 10/ to £28.

FRANCE.

(Moniteur des Interets Materiels.)

PARIS, October 19, 1873.—*Metals.*—There is no particular change to be noticed in Metals this week. Prices on the whole have been well sustained, not so much from any increase in the demand, as owing to continued high wages and coal prices. Of speculation, there is very little; the gravity of the financial situation, hightened by the steady raising of the discount at London, keeps it in check. The political horizon in France is overcast, also, and raises apprehensions which operate against a revival in trade. *Copper* has been subject to frequent fluctuations. The general course pursued by the article has been characterized by greater animation, with more firmness in rates. London was on the rise, but the higher discount caused a reaction. The reduced charters at Valparaiso, it was hoped, would bring about a recovery, but holders have been disappointed, and there was greater weakness at the close. There has been an improved tendency at Paris, but the movement was too feeble to gain stability. Chili bars, 235; ingots, 232½. Havre, without dealings, at 220 to 225. Copper is firmer at Marseilles at 225 francs. The arrivals of Copper at Antwerp have been more copious of late, and it is to be hoped that a Metal Exchange will be opened there, the more so, as the port has just inaugurated its own direct steamer line to South America. The German markets are weak, on the whole, and transactions there are restricted to consumptive requirements, without any change in values. Stock of Chili and Bolivian Copper, at Liverpool and Swansea, 21,800 tons, in first and second hands, against 21,000 the 15th Oct., 1872, and 17,700 in 1871. The *Tin* accounts from the various European centers are far from cheerful. At London foreign Tin has been neglected, and there has been rather an inclination toward a lower range, yet, an outright decline has been prevented. All seem to agree that Tin prices have dropped to a point so low at present that, considering the cost of production, a further decline is hardly possible. But there are, nevertheless, no signs of an improvement yet. Of speculators there are none, and the consumption of Straits Tin in the interior of England is but trifling. There have arrived in England from Australia this year some 3'00 tons. The sales effected have been so low that it is to be presumed they will tend to decrease production in Australia. Without a doubt it is mainly due to Australian importations in Europe that such a change has been wrought in Tin values. Buyers have been greatly puzzled, and do not venture to go beyond present wants. *London* is quiet. Paris is on the decline, at 325 francs at either Havre or Paris. Marseilles has been unfavorably influenced by the panic at New York. At Amsterdam, Tin is weaker under lower English accounts. At Stettin, Banca is 46 to 47. Penang, per cable, 9th instant, $32½; Singapore, same date, $33½. Lead is firm in England and slightly improving here, at 60½. Spanish, at Havre. In Germany the markets are devoid of excitement; Spanish Lead has disappeared from the markets there, nor do they expect any for some time to come. Spelter is slightly better in England. Paris, on the other hand, has gone down. Silesian there, 71½. Nothing doing at Marseilles. Germany is firm with few dealings. *Iron.*—There is a slight amelioration observable in the general tone of the market, and prices are stopped in their downward course, with a livelier demand for certain articles. We are sorry that the general position of the staple is such that even a moderately active week has to be dwelt upon as something noteworthy. Pig Iron is still comparatively neglected, and many furnaces are being extinguished; yet, as a general thing, hopefulness begins to revive. Rails continue to look up at 310 francs. Lyons and St. Etienne are more animated at 310 francs for Wrought Iron. *Coal.*—The fine weather we have had has rather checked buoyancy in the fuel. The laying in of stocks has not been so extensive as in former years.

BELGIUM.

(Cote Libre.)

LIEGE, Oct. 11.—Pig and Wrought Iron continue on the decline. Coal remains firm, and there are no indications of an impending giving way, while Coke offers at the lowest Coal prices.

CHARLEROI, Oct. 12.—Metals are unaltered; business is almost altogether at a standstill. Price lists have again been lowered to 10½ to 11 francs for Pig. Rails are neglected. Wrought Iron may be quoted 25 to 26 francs. Sheet Iron, No. 2, held at 35 francs for No. 2, and 37 for No. 3.

Moniteur des Interets Materiels.

BRUSSELS, Oct. 19, 1873.—*Iron.*—Although the general position of the staple is still far from satisfactory, the larger works show a better opinion of the future, and make extensive preparations for supplying the demand they expect soon to spring up. The decline has been general, its causes have been well studied and understood, and everyone has been and is well aware that sacrifices had and have to be made, to ease the situation, till a natural reaction sets in, which does not seem remote now. *Coal.*—We have fine weather at present, and there is not that eagerness shown, observed in previous seasons, to stock up all at once with Coal. One good has resulted from the anomalous state of affairs that had been brought about in the course of the present year, the timely laying in of winter supplies avoiding difficulties of transportation, which would have been inevitable later on had everybody hesitated to the last moment. The Eastern line of French railways has made a contract with the Prussian government for an annual supply of 130,000 tons of Coal from the Saarbruck mines for ten years to come. Hitherto the same company took 50,000 at Saarbruck and 70,000 in Belgium.

GERMANY.

(Borsenhalle.)

HAMBURG, Oct. 17, 1873.—*Metals* are, on the whole, quiet. Lead without anything doing; German at 25 to 26 marks, English at 26·30 to 26·50. Copper weak; Northern sorts, 96 to 105; Minnesota, 126. Tin is dull: Banca at 1·42½; English, 138 to 140; Rods, 140 to 142½. Spelter without dealings at 27.

AUSTRIA.

(Freie Presse.)

VIENNA, Oct. 20, 1873.—The official documents giving full statistical details of Coal production in Austria, on this side of the Leitha, have just been published. From 63,630,931 quintals, in 1861, the yield of our Cis-Leithan Coal mines has risen to 153,128,878 quintals in 1871. Of these latter 77,729,639 were Coal and 75,399,239 brown Coal. The consumption of Coal in Austria, this side of the Leitha, from 18,665,871 quintals in 1848, rose to 80,780,611 in 1861, and to 204,565,799 in 1871.

HOLLAND.

(Wm. Brummer, Schroder & Co.)

ROTTERDAM, Oct. 18, 1873.—Tin, Banca auction paying conditions, has been paid 72, 71⅝ and 71¾; futures, deliverable from the coming November auction, 72 to 71⅝, and February, 71. Billiton, spot and landing, sold at 70⅝, 70, 71, 70, 70¾ and 71 guilders.

(Koch & Vlierboom.)

ROTTERDAM, Oct. 21, 1873.—*Tin.*—Banca, auction conditions, has been sold at 71⅛ to 73, and spot, landing and steam afloat. Billiton at 70 to 73. Banca, spot, November and February auction delivery, may still be had at 73 guilders.

The cable reports that Mr. Alexander Brogden, Member of Parliament for Wednesbury, England, delivered an address before a trades union at Darlington, on Monday night. In the course of his remarks he stated that he had been offered 10,000 tons of English rails, now lying in New York, for a price two pounds less than their original cost.

Our English Letter.

Review of the British Iron, Steel, Metal and Hardware Trades.

(From our Regular Correspondent.)

SHEFFIELD, Eng., October 21, 1873.

The letters which have appeared in your columns over the signature of "An American Manufacturer," of whose identity I am, of course, aware, have been republished here by the local papers, and have, as a matter of course, given rise to some discussion, which has, in the case of Joseph Rodgers & Sons, amounted to repudiation of the strictures expressed on the old-fashioned way of working prevalent in some establishments here. This firm, through a local newspaper, express their conviction, with some little *hauteur*, that machinery cannot be made to produce best cutlery of a quality anything like that turned out by hand. As a proof of this they assert that their best ivory goods are to be found in all the principal hotels and most of the best families of America, and that their trade with the United States is yearly on the increase. They say that they are quite content to adhere to their present mode of production, and do not believe that machine-made cutlery can compete with theirs. Following up this statement comes a letter from Mr. John Wilson—widely known here-a-bouts as a man of considerable culture, although he is but a workman—(having been in the employ of Messrs. Rodgers & Son for a great many years) to the Sheffield *Telegraph*, in which he lays further claim to superiority of British manufacturers over all others. He alludes to the large-sized saw plates of Messrs. Jessop (mentioned by the "American Manufacturer"), and urges that their saw plates beat all the world, adding that at the Vienna Exhibition the Sheffield pit, mill, and circular saws are quite unequalled, that of Spear & Jackson being eighty-seven inches in diameter. Herein I don't think either you or myself will dissent from his conclusions. Messrs. Jessop enjoy that superior position, and most deservedly. I may say that than the present head of the firm no gentleman in Sheffield is more highly respected, both in public and in private. But when Mr. Wilson, who is an acknowledged leading spirit amongst workingmen of the higher grades, endeavors to defend Joseph Rodgers & Sons' adherence, *in all respects*, to primitive modes of working, he fails to reason logically, and, to my thinking, altogether loses his point when he shifts his ground by instituting comparisons between Rodgers' dividend and those of John Russell & Co., and other American houses. Personally, I have no wish to depreciate the position of Messrs. Rodgers. They have won a high status by the acknowledged excellence of certain of their goods, and by dint of good management have secured an enormous trade in razors and some kinds of cutlery, therefore they decline to use machinery. At present they don't want it, but the time may possibly arrive—and if I were a cutlery manufacturer I may say that I should endeavor in my own business to make it the immediate future—when they *must* use machines or lose their prominence. Even now I should like to ask Mr. Wilson what proportion of cutlery Messrs. Rodgers make in their own premises, and what they stamp with their brand of outside make? How many "little masters" work for them, turning out cutlery, certainly, of capital quality, but which, without their mark, would not sell for within 30 per cent. of what it fetches in their hands? Messrs. Rogers have, I am well aware, in one of their principal managers, the best judge of cutlery in this or any other country, and they are, I do not doubt, the largest holders of ivory in the world, yet I contend that these and their other collateral advantages are not progress in the true sense of the word. I should be glad to be informed how cheap and medium qualities of cutlery are to be produced so as to compete with German and American makes, without machinery of some kind? How is it that some Sheffield firms—the Messrs. Nixon & Winterbottom, Messrs. Kitchen, and a very few others—are enabled to keep running full time, producing large quantities of goods to order, when other, and the bulk of the Sheffield firms are grumbling about the remarkable scarcity of orders? Because they use machinery and find that it does its work admirably for the class of goods they wish to, *and can*, sell. Will any cutlery manufacturer rashly assert that to forge a blade out of a piece of rod steel is better and cheaper than to cut it out of sheet steel (of proper temper) by a "fly," or drop press? I think not. Yet these same people would, and do, contend that although you may thus cut out a table blade by what must be termed machinery, you cannot put the bolster on by proper mechanical contrivances, neither can you use similar means in one or two other processes! Mr. Wilson further adduces the fact that Rodgers' £100 shares are worth £202 to £207. To which I reply that the shareholders are so few (under 40), and so wealthy that the shares are certain to be quoted at high prices, although none ever change hands. Distribute them amongst 300 or 400 shareholders, and then note what would occur. Mr. Wilson winds up his letter by stating that this summer he accompanied Mr. R. T. Buck, the celebrated edge tool manufacturer, of Millbury, Mass., through Rodgers & Sons' works, that gentleman remarking that their method of forging razors was behind the age—but, says Mr. Wilson, "in answer to my inquiries, he could not tell me the name of a successful razor manufacturer in America." I won't dwell longer hereon, merely remarking that this last quotation reminds me particularly of little Doctor Ponnove in Poe's "Some Words with a Mummy." It may be alleged that I do not view this matter impartially, in response to which I would say that, beyond being a shareholder or stockholder in one or two undertakings, I have no interest either in one or other direction, hence I cannot possibly be biassed, and shall at no time, and under no circumstances, do other than endeavor to place before you a strictly impartial and accurate statement of any matter under notice.

In leaving controversial ground, and glancing at the general condition of the iron trade, I hardly need to say that the event of last week was the decision of Mr. Kettle on the wages question. I gave you his *flat* last week, and now lay before you his decision at full length. I feel able to recommend you to peruse it carefully, parts of it being especially interesting to iron masters. A reference to the facts and figures enumerated in my last weeks' letter will, perhaps, be of assistance in arriving at a comprehensive apprehension of the drift of Mr. Kettle's line of argument.

The ironmasters of the North of England and of Staffordshire had resolved (Mr. Kettle says) to ask for a reduction of wages upon the following grounds: That, owing to the high rate of coals and pig iron, they are unable to sell iron with a profit; that the rise of wages in the finished iron trade had been greater than in any analogous industries, excepting the coal trade; that it was expedient to lower wages as an inducement to coal owners to reduce coal, and so bring iron down to a price that will induce purchasers to deal. Mr. Kettle proceeds to argue—

"I. That inconsequence of the high prices of coals, and of pig iron (the price of which depends so much upon that of coal) they are unable to sell iron with a profit with the present rate of wages.

"II. (Though this argument is not so much insisted upon as the first). That the rise of wages in the finished iron trade has been greater than in any analogous industries, except the coal trade.

"III. That it is expedient to lower wages, as an inducement to coal owners to reduce coal and so bring iron down to a price that will induce purchasers to deal.

"(I.) Upon the first of these arguments I could only repeat what I said at Saltburn, when the arguments founded upon the price of coal were properly urged against the continuance of the sliding scale, and also in relation to the rate of wages. I there expressed my opinion—and gave my reason for it—that the purchase of raw materials is part of the mercantile business of iron making, the risk of which must be taken by the employer as a capitalist. If by this forethought and the proper estimate of the commercial risks, the employer makes a good investment of his capital in raw materials, the workmen has no right to share the gains. On the other hand, if he makes bad purchases, or omits to purchase at the right time, not foreseeing the coming market, he cannot call upon the workmen to participate in his losses. From the first establishment of the iron trade up to the present date the employer has taken upon himself the whole of this risk. In the old iron-making district, with very few well-marked individual exceptions, the course of trade was for the iron manufacturers to purchase quantities of mines, both of coal and iron in the block, to hold and use as part of his stock in trade. The holding of mines was not at all times and by all firms co-extensive with their requirements; but as the prices of coal, pig iron, and merchant bars were officially fixed at the commencement of each quarterly meeting, their relative values were publicly known. In the Middlesbrough district it was the practice to purchase large quantities of materials for the blast furnace for forward delivery, some of the contracts extending over several years; whilst for mills and forges, coal was purchased for consumption for periods of at least a year. As iron furnaces and mills and forges have been increased in number faster than mines could be bought, or pits could be opened, to supply them with fuel, some of the newly-established finished iron works have to depend upon the purchase of coal, as well as pig iron, under very disadvantageous conditions.

"This circumstance does not alter my opinion that this is a commercial risk which belongs to capital; and that the workmen should not suffer directly for the consequences of that part of their employers' trading over which they have not the slightest control.

"I find from authentic returns made to me on behalf of the employers in the Ironstone Mining Arbitration, that when the make of iron was at what I believe to have been the lowest ebb in the year, out of 2101 furnaces belonging to thirty-nine firms there were 582 puddling furnaces "laid off," and that of these five-ninths belonged to only four of the thirty-nine firms. So that, in fact, the depression of trade was not distributed generally over the district, but was, I found, for the most part centred in those houses who were buyers, for immediate consumption, of pig iron and fuel.

"Now, suppose the effect of lowering wages was to enable firms, situated as the four I have referred to, to make finished iron at present prices, would it not also add so much profit in another department of the business of iron making to those firms who had been so fortunate as to buy coal and pig iron forward, or who had bought in block for future consumption, and held coal mines as part of their stock in trade. It would be as inconsistent to raise the wages in one case as to lower them in the other; and yet, if I entertained the argument, I see no way in which I could act upon it equitably without having different rates of wages.

"II. As to the second argument, that the rise in ironworkers' wages has been greater than in other similar industries; that depends upon the point from which you start. Wages in different trades, as we all know, have not risen simultaneously; it has been now one trade and then another which has obtained a rise. I feel quite sure that if comparisons with other trades are carried back as far as they ought to be—to institute a fair comparison with the finished iron trade—it would be found that ironworkers are not paid comparatively higher now than they were before the modern rise in the price of labor commenced. Their rise began earlier than that in most other industries; but this was owing to the accident that the railways take their special manufacture, and that so many modern improvements are carried out by the use of iron. I do not go into details, because, as I said, this point was not insisted upon; and is, after all, of much less importance than the first or the third.

"III. Let me now deal candidly with the third proposition. Although the price of fuel ought not directly to affect the rate of wages, I know full well it must indirectly affect it from the inevitable tendency of high prices to check consumption, and therefore lessen the demand for labor. The iron trade is peculiarly and extensively liable to this check in consumption. The great bulk of iron now produced is used in carrying out new and great enterprises: railways, ships, bridges and permanent constructions of all kinds. Great works are not projected, or, if projected, their execution is delayed, when it is believed that the price of iron is unnaturally high. This checks trade; orders fall off; and some works must be stopped—and, of course, the weakest (in coal) first go to the wall. At such a time puddling furnaces are laid off, and workmen are thrown out of employment. It may be that, to a greater or less extent, these bad times are coming, as the masters fear. Our iron exports are already falling off in quantity, although they are keeping up in value; and the use of iron is already very much checked at home. I learn, however, from the tables before me, that if this dreaded downward course in the iron trade is to be run, it has not begun at present; and when it has begun, I am quite sure that the mere reduction of wages to an extent that will bring the cost of producing finished iron down 5/ a ton will not stop it. I remember that the masters contend that it is not the five shillings per ton of itself that will make the difference; but that the reduction of wages will have a tendency to induce coalowners to reduce the price of coal. The men, on the other hand, say that it will have the opposite effect, and that what is taken off wages will be put on coal. I need not go into this, because it is a speculation upon tendencies urged by both sides. As a general rule, I may say you do not reduce prices by efforts to keep up demand. The employers who appeared before me were not unanimous in this branch of their argument. There was another upon the probable immediate effect of lowering wages, apart from its supposed influence upon the coal owners. It was urged very deliberately and forcibly, for reasons based certainly upon long experience, and perhaps also upon sound judgment, that the contemplated reduction in wages would be regarded by the buyer—and particularly the speculative buyer of iron—as an indication that prices were giving way, and that the buyer might think his better discretion would be to wait and see how low prices would go before making purchases. I do not think it necessary I should decide on which side of the reasoning the balance of probability lies.

"I have said that the down wardcourse has yet not commenced. I assure both employers and workmen that if I conscientiously believed it had commenced, or was immediately about to commence, I would award that the men should take the consequences, whatever they may be, of submitting at once to a reduction of wages. I am bound to declare, upon a close examination of Mr. Waterhouse's returns, I find at the present time no indication of a real, substantial, giving way of either production or price.

"I am told that I cannot rely upon the figures before March, 1873, because Mr. Waterhouse's tables are made up from the returns of members who composed the Arbitration Board for the time being, and therefore may not relate to precisely the same number of puddling furnaces. The facts since that date, I am informed, are drawn from the same firms. I may state that if I could use the previous returns, they would greatly strengthen my position. What, then, are the facts before me? The sales for March, April and May, were 57,000 tons per month. For the months of June, July and August, the average was only 42,000 tons a month; but it came to my knowledge for other purposes, as I before mentioned, that at the end of June the make of finished iron was reduced 2-7ths; but the diminution of sales for the three months is only a fraction over 1-7th. Large stocks of finished iron are not kept by manufacturers: so that the make and the sale practically describe the same quantity with sufficient accuracy for my purpose. Between the end of June and the end of August, therefore, it is quite clear the trade must have revived, otherwise the deficiency would have been 2-7ths instead of 1-7th. If I take Mr. Waterhouse's figures for the last month (September), I find the sales are further increased; for by adding the two omitted firms to these returns it brings the month's sales up to 52,000, as against the average of 47,000 tons per month in the preceding three months. Nor is there any very great variation in price. For I find that the average of the quarter (March, April and May), was £11. 8 ; for the next three months (June, July and August), it was £11. 19 ; and for the last month, adding the two omitted returns which have now been given to me, it was £11. 12/6, a little higher than the first period, and a little lower than the second. All the employers say there is a lull in the trade now. Some of them say they have only a few weeks' orders on their books. I should have wondered if this state of things had not arisen. When—by whatever means produced—there is a general impression that an attempt will be made to reduce wages, it is a matter of common knowledge that buyers of iron will, and do, withhold their orders. Indeed, I may say that, if they are prudent men, they ought to withhold their orders when a fall of wages is claimed by the manufacturer, because he believes he must reduce the price of his iron to meet the market. I am told that the present state of trade is what is called "a spurt"—that it has come on in consequence of the closing of the shipping season to Russia, and the north of Europe generally. It may be so; but what does that mean commercially? It means that the buyers have stayed out of the market as long as they possibly can, in the hope that prices would fall. Prices have not fallen as much as buyers expected; they must have iron, and now they issue their orders for prompt delivery. In fact, the same quantity of iron is taken by the customer, but the manufacture of it is not distributed over the usual period. It must be borne in mind that I am acting judicially in this matter. I must rely, so far as they will lead me, upon the actual facts before me. What I have to find out is the condition of the iron trade. For this purpose I can refer to authentic figures; and I should stand on very unsafe ground if I so far disregarded these to allow them to be explained away by expressions of opinion. There are Mr. Waterhouse's tables, showing the fact that for the past seven months, and particularly for the last month—September—there has been a good, fair average business done in the North of England iron trade; and I feel bound to act upon those facts. The masters frankly offered me an inspection of their books for the purpose of satisfying my mind as to the state of their profit and loss account. I could not have more convincing evidence than that which was afforded me by the closing of some of the most perfect finished ironworks in the Middlesbro' district. I know if they could have been worked to a profit they would not have been closed; and I know this is true of every puddling furnace which is laid off. Upon a very slight turn of the trade these works have begun again, and I also know that they would not have been begun again unless their proprietors believed that they could be worked to a profit. If the books of firms using their own coal and pig iron, or who had made prudent contracts forward, were so kept as to show the current value of the material used they would show upon the profit and loss balance sheet of finished iron, making the same results which had closed some of the neighboring works. If I had accepted this offer to go over the books for the purpose of ascertaining profit and loss, I should, by implication, have admitted the right of the employer to ask his workmen to participate directly or indirectly, in their employers' losses; and I do not see how the employers could, with logical consistency, have refused the workmen at any future time the examining of the same accounts that they might participate in profits.

"The last point I have to consider is whether, at the present time, having regard to the price of pig iron and coal, and the sale price of iron, the masters are as well off as they were at the time when my Saltburn decision was given. If not, of course I am bound to reopen that settlement. There is some dispute as to the extent of the reduction in pig iron and in coal since the present rate of wages was fixed. The workmen say 10/ in the former and 4/ in the latter. The employers say that those of them who are buyers are, from the state of their contracts, now paying about as much upon these two articles as was paid when I gave my last award. It is enough for me to say that I am satisfied that there has been lately a substantial reduction in the price of pig iron; and that the price to-day for mill and forge coals is less than the highest prices quoted over the period to which Mr. Waterhouse's returns relate. Here

again, let me say, that I have reason to believe, from statements made at the Board, that some of the firms of finished iron makers are not in a position to avail themselves of these advantages; and I very much regret that they may be under pecuniary disadvantages in consequence; but, I repeat, it is part of the ordinary risk of the employer as a capitalist.

"Before I conclude, I beg to say that I have not used the tables of Mr. Waterhouse as the only basis of my award. I have taken the information they contained, with other facts and estimates, so far as they bear upon my conclusions. I have not revived, nor attempted to revive, what is called the sliding scale. The workmen well know that if that scale was still in existence their wages would be higher than those they are now receiving; but I feel confident that, all things considered, their wages are as high as they are entitled to; or, as it is prudent of them to require. And I feel sure that under the most favorable circumstances, for reasons which are easily gathered from my foregoing observations, that there are some finished iron makers who can barely afford to pay the present rates. It is the duty, under such trying circumstances, of the workmen more than ever to strive to give fair value in good steady work for the wages they receive, and to consider that by promoting the employers' interest in the course of their labor they are taking the most effectual and most direct means of saving themselves from a drop in wages. My desire has always been, and is now, to promote steadiness of trade. The masters have not satisfied me that it is either economically right or commercially expedient to reduce wages at present; and, therefore, my award is that present prices be continued over the current quarter.

"I must add as a supplement to, but as a part of, my award, that I do not intend my decision to affect certain minor disputes which are, or have been, pending at the following ironworks, viz.: North Yorkshire Iron Company, Palmers' Rolling Mills, Consett Iron Company, Witton Park Company, Bowesfield Iron Company, Messrs. Shaw, Johnson & Reay, Stockton Rail Mill Company, and Messrs. Hopkins, Gilkes & Co. Such of these disputes as are not already settled must, if necessary, go before the standing committee."

The same award settled the wages question in South Staffordshire, in both cases the men being determined not to accept the reduction, even if so awarded by the arbitrator. At Glasgow warrants have vacilated a good deal, and are now quoted at 113/ to 113/9 for cash. Makers' prices are rather stiffer, thus: Gartsherrie, No. 1, 122/6; No. 3, 118/; Coltness, No. 1, 127/6; No. 3, 118/6; Summerlee, No. 1, 120/; No. 3, 115/; Carnbroe, No. 1, 119/; No. 3, 117/; Monkland, No. 1, 117/6; No. 3, 114/; Clyde, No. 1, 117/6; No. 3, 114/; Govan, No. 1, 117/6; No. 3, 114/; Langloan, No. 1, 125/; No. 3, 117/6; Calder, No. 1, 125/; No. 3, 115/; Glengarnock, No. 1, 120/; No. 3, 117/; Eglinton, No. 1, 119/; No. 3, 116/; Dalmellington, No. 1, 118/; No. 3, 116/; Carron, No. 1, 120/; Shotts, No. 1, 125/; No. 3, 117/6; Kinneil, No. 1, 117/6; No. 3, 112/6.

There is very little change to note in the manufactured iron or shipbuilding branches since I last remarked upon them. A great trades union demonstration against the criminal law amendment act will be held at Glasgow on November 1st. Paisley alone will send 5800 representatives. Some day or other we shall see this piece of legislation repealed. In the Cleveland district the market is more unsettled, but quiet, at the following current prices: Pig iron, No. 1, 107/6; No. 2, 105/; No. 3, 100/ (and others in proportion); refined iron, 120/, net cash at furnaces, or 1/ per ton extra for four months' bill. Bar iron, from £12 to £14; cable iron, £13 to £13. 10/; ship plates, £13. 10/ to £13. 15/; boiler plates, £15. 10/ to £16; angle iron, £12. 10/ to £13; rails, from £11 to £12. 10/, according to section; nail rods, £12. 10/ to £13; puddled bars, £8. 5/ to £8. 10/, on wagon at works, four months' bill, or cash, less 2½ per cent.; cast iron girders, £10 to £11; chairs, £5. 10/ to £6; pipes, £9 to £10. 10/, according to section; wrought iron girders, £20 to £21; fish bolts, £19 to £27; spikes, £16 to £23; rivets (according to quality and size), £16 to £31; washers, £24. 10/ to £30. 10/; wire (best prepared bright fencing), £19. 10/ to £21, according to number; best best annealed drawn fencing, £18 to £20; cut nails, (clasp, rose and clout), from 18/ to 23/ per cwt., according to size; joiners' sprigs, from 19/ to 23/6 per cwt.; sheet flooring brads, from 17/9 to 18/3 per cwt.; lath nails, from 20/ to 23/ per cwt.; colliery plate nails of first-class scrap, warranted, from 20/ to 21/, cash monthly, less 5 per cent. in 30 days from date of invoice on trucks at works.

At Sheffield, since the quarterly meetings at Wolverhampton and Birmingham, there is no great change to note in the general condition of the iron trade. Pig iron is unchanged as to supply and price, but I hear of finished iron being advanced 10/ per ton by some of the local merchants. Swedish brands are in fair request and are not cheaper. Best brands, such as K B and others, are realizing £31 to £32 per ton. Russian irons are quoted at £22 to £26 per ton, according to brand and quality.

Hematite ores are firm, both Spanish and British being some 1/ or so higher than they have hitherto been, probably owing to the closing up of Bilbao by the Carlists.

A meeting of the creditors of Mr. John James Bagshaw (trading as J. J. Bagshaw & Co., of the Thames Steel Works, Arundel street, Sheffield) was held this afternoon. The liabilities were stated to be about £16,000, and assets £5700. The meeting decided to adopt liquidation, Mr. Hadfield being appointed trustee. Various causes are assigned for the failure.

In some cases I hear of an accession of orders in the cutlery trades, and this fact is supported by the opinion of some large traders, who opine that although these industries are now so generally dull, a considerable revival of business will set in before Christmas. That period is now not very remote, and as considerable preparation for it in the way of extra work is almost invariably made, we may expect to note an improvement from this time to the end of the year. American orders for best cutlery are rather more numerous and heavy, but there is no amendment in the demand for ordinary descriptions. I hear of one or two small manufacturers being obliged to give up business, mainly owing to the combined dearness of fuel and raw materials. In one instance which has come under my notice, the person so giving up has taken a subordinate situation with one of the large firms, and in another the late manufacturer goes to try his fortune across the Atlantic. Prior to the advance of fuel and materials these men could and did a thriving business, but now they cannot possibly exist. This, I take it, will go on on a larger scale, and the small manufacturer, or "little master," as he is locally termed, will become in time entirely obsolete. The trade in light edge tools has not materially slackened; in fact, several houses have their capabilities taxed to the very utmost. There is a steady inquiry for firmer chisels, plane irons, bruzzers, gimlets, gouges, axes, adzes, and other joiners' tools, as also for turners' tools for both iron and wood.

Makers of machinery are yet very busily engaged, not only for the home trade, but for India, Egypt, Germany and Russia. The cutting parts of agricultural and other machines meet with an active demand. In cast, blister, shear, and double shear steel a fair stroke is being done at prices not differing in any material respect from those quoted in these notes a month back. Certain firms in the United States are taking a fair tonnage of axe and general tool steel, as well as rods, bars and plough plates, but chance customers are not ordering more than the merest necessities of their current business. At New York a good deal of trouble continues to be occasioned by the captiousness of the customs officials and the question of tariff.

Files of small size for machine shops, and of larger dimensions for railway and other rough work, are in moderate request, a fair proportion going to Germany, Italy, Russia, India and the larger colonies.

Hardly so much is being done in saws for the home trade, but some respectable indents from the Cape, India, Norway, Sweden and Australia have recently come to hand, mostly for circulars of medium and large size.

As I write I learn a highly important piece of information anent the steel trade. Some time ago, you will perhaps recollect, I stated that the steel and iron manufacturers had determined to close their works three days every week, on account of the high prices of fuel and raw material. This was done in some instances, but not in all, a compromise with the coal owners having been effected. In no instance, however, has more than five days per week been worked. Now, the rapacity of the colliery proprietors is leading them to stiffen prices again, consequently the steel manufacturers of this town have to-day made a stand against them by closing, and will, from this time until some change occurs, only run three, or, at the outside, four, days per week, in all departments where the usage of coal and coke is heavy. I am told of the case of a single firm which will save five hundred pounds per week by closing one day weekly, that being the value of the two hundred and odd tons of coke used per diam. Whether this step will be effective or not is a matter open to very considerable doubt. The coal owners hold a strong position—and they know it. The Sheffield *Telegraph* has an extract from an advice writen by the agent of a Sheffield merchant, and bearing date, New York, Oct. 3: "Buy no goods for stock. The travelers out report business dull in the Northwestern States. The orders for the fall trade are expected to be very light. During the past fourteen days business has been much disturbed by the financial troubles, and will be to some extent for the rest of the year."

At Birmingham and the surrounding Black Country there is no very marked change to note in the general state of trade. In the iron trade proper prices are firm, but no great stroke is being done. Bars, as heretofore, are £14, with £13 for commoner brands; sheets, £15 for common up to £19 for best, with other kinds in proportion. Metal rollers are very busy on thin sheets for cartridges, and on ordinary rolled brass and copper for tube making, stamping and the like. In ammunition a fair amount is being done, for the most part on foreign and home government contracts—some being destined for exploration into the internal economy of our dark foes of Ashantee. American inquiries for common guns are below the average. Brass founders are busy, and there is a steady demand for gas fittings, chandeliers, hollow ware (cast and wrought), and for edge tools. The steel pen trade is, and has been for some time, amazingly active. From South Wales there is no "great news," save that capitalists are just now bestowing great attention upon it, with the view of further openings up of virgin mineral or coal tracts. Shipments of rails on a moderate scale continue to be made to New York, Salonica, Cronstadt and Riga. The total exports of iron from Cardiff, during September, was about 18,000 tons. In metals there has been very little doing except in copper, which has been turned over in bulk. Messrs. Von Dadelzen & North, in their usual weekly report, say: "The charters for the first fortnight of September were telegraphed on Monday as only 500 tons, with a reported increase in the stock on the coast of 1200 tons. The market was very brisk, and fully 2000 tons of bars changed hands from £84 to £85. 10/, cash, for ordinary brands, £86 for named brands, and £87 to £87. 15/ best brands. Parcels, with one or two months prompt, realized £86 and £87; three months, £87. 10/; but a reaction of fully 20/ has taken place, and the last price accepted was £84. 10/ for good ordinary bands, cash. Australian was sold at higher prices. Burra, £94. 10/; Wallaroo, £95; with prompt of two months, £95. 10/ and £96. The market closes £94 for Wallaroo. English very firm; about 1500 tons regulus at 17/ per unit, and 600 tons ore at 16/6. Tin was a trifle lower. Straits, on the spot, was sold at £121 and £120, and the latter price was taken for November and December. The market has since improved to £122, closing thereat. Banca quite nominal. Billiton, £119 to £120. The Dutch market is dull. Banca, 72fl.; Billiton, 70fl. and 71fl. English tin dull; about £124 for ingots, and £126 refined. Tin plates are very inactive, and obtainable at lower prices. Lead very firm; £24 to £24. 5/. Spelter is quiet. Sales reported of ordinary brands at £27 and 27. 5/ for Silesian; special brands, £27. 10/ to £27. 15/ in outports. English very firm. Quicksilver advanced to £17."

The *Mining Journal* states that on Monday last the charters from Chili, during the first fortnight in September, were advised as 500 tons of bars. The stock on the coast has increased to 6300 tons, but this has not had the effect of depressing the market, which, owing to the small charters, exhibited greater firmness and a good business followed—250 tons of regulus on the spot, and 750 tons to arrive, changed hands at 17/ per unit. Of Chili bars, "R. Walker" realized £87. 15/; named brands, £86. 5/; g.o.b., £85. 10/ to £85. 15/ and £86, including, in all, about 750 tons, all on cash terms. On Tuesday the advancing tendency of the market was checked by a somewhat unexpected rise in bank rate to 6 per cent. At the Swansea ticketing 1813 tons of ore at an average price of 15/10½, and the Cape at 17/¾; 600 tons Chilian ore, per Delaware, was sold by private contract at 16/6. During the day 225 tons Chili bars were sold; Lota, at £85. 10/, cash; g.o.b., £86 to £85 one month, and £86 two months, £86. 10/ to £87 three months. Three hundred tons of Wallaroo, with various prompts, were sold at £95 to £96, and of regulus a small parcel realized 17/. On Wednesday the market was quiet. Chili bars, g.o.b., were quoted at £84. 10/ to £85, cash, and 50 tons Wallaroo changed hands at £94. On Thursday the market was again quiet, the only transaction reported being 25 tons Urmeneta at £84. 5/, net, and 25 tons picked brands at £85. 10/ usual cash, 25 tons Wallaroo at £94, cash, and 50 tons Wallaroo and Burra, all the year, sellers' option, at £93 and £93. 10/.

As to the Swansea ticketing, it may be stated that 1813 tons were sold at an average of 15/10¼ for ore, and 17/¾ for Cape. Particulars are as under:

Averages.	Wh'lesale.	Cape P'duce.
Produce	14¾ ₩ c.	13 1-16 ₩ c.
Price per ton of 21 cwt. dry..	£11. 7/11	£98. 4/6
Price p r unit of produce...	15/10¾	17/11
Standard	£94. 15/8	£92. 3/
Ditto, calculated for 9 per cent. produce	£102. 3/3	£106. 15/

The market for tin is steady, and a moderately good business has been done. On Thursday 50 tons Straits sold at £121, and 20 tons for November and December at £120. On Friday 10 tons Straits sold at £121 to £121. 10/, and 5 tons for December at £120. English ingots are quoted £125 and £126. On Saturday Straits were held at £121, but some went off at £119. 10/ for December delivery. On Monday Straits were again quoted £121 with a quiet market.

New York Wholesale Prices, November 5, 1873.

HARDWARE.

Anvils.
Solid Cast Steel.....℘ ℔ 14c
Wright's.....℘ ℔ gold 12c ; over 250 ℔s 12½c, gold
Armitage's Mouse Hole.....gold 12c
Wilkinson's.....℘ ℔ gold 11½c
Eagle Anvil Co. ℘ ℔ 11c.....dis 15 @ 15&5 %

Apple Parers.
Turn Table..... } $8·50 ℘ doz
Lightning.....
Conqueror.....
Reading.....℘ doz 9 00
Union.....℘ doz 9 00
Bay State, Paring, Coring and Slicing.....15 00 } dis 5 %
Skeleton " " ".....9 00
Climax Slicer.....9 00
Bay State Peach Parer.....$11 00 @ 11 50
Lightning " ".....11 00 @ 11 50
Peach Stoner and Halver.....7 00

Augers and Bits.
Snell Mfg. Co.....dis 15 @ 20 %
Russell Jennings.....dis 10 %
Douglass Mfg. Co., Extra.....dis 30 %
" " No. 1.....dis 30&5 %
" " Hollow Augers.....dis 25 %
Cushman's Expanding Hollow Augers.....4 50 each, net
Ives'.....dis 30 %
" Hollow Augers.....dis 30 %
" Expansive Augers.....dis 30 %
" " Bits.....dis 25 %
Andrews' Bits.....dis 30 %
Cook's Patent Augers.....dis 30&10 %
" " Bits.....dis 25&10 @ 30&10 %
Shepardson's Double Cut Bits.....dis 20 %
Griswold's Patent.....dis 20 %
Cast Steel Cut Augers.....dis 30&10 %
" Auger Bits.....dis 30&10 %
Long Augers.....new list dis 30 %
Bonney's Patent Hollow.....$48 per doz—dis 25 %
Stearns' " ".....$48 per doz—dis 30 %
Morse's Bit Stock Drills.....dis 20 %

Axes.
Blood's.....$12 50 @ 14 00
Hunt's.....℘ doz $15 00 @ 17 50 net @ dis 5 %
Collins'.....℘ doz 12 00 @ 16 00 net @ dis 5 %
Hard's.....℘ doz 12 50 @ 13 50
Schweitzer Mfg. Co.'s.....℘ doz 13 00 @ 15 00
Simmons'.....℘ doz 12 00 @ 13 50
Morris'.....℘ doz 12 50 @ 13 50
Red Jacket.....℘ doz 12 00 @ 12 50
Mann's.....℘ doz 12 50 @ 13 00
" Double Bitted.....℘ doz 21 50 @ 22 00
Powell Tool Co., "Peerless".....℘ doz 13 00 @ 14 50
Underhill's.....℘ doz 12 50 @ 13 50
" Crown.....℘ doz 13 00 @ 14 00
John Leverett's.....℘ doz 12 50 @ 15 50

Balances.
Chatillon's..... } new list dis 15 %
Frary's.....
Morton's.....

Bands.
Plated.....add 10 ; dis 5 %
Iron.....dis 15&5 %
Brass (Plated list).....dis 5 %
Oroide.....add 15 ; dis 5 %

Bells.
Hand, Light Brass.....dis 60&10 %
White Metal.....dis 45&10 %
Globe.....dis 20 %
Swiss Hand.....dis 10 %
Abbe's.....dis 10&10 %
Taylor's Patent Door.....net
Western Gong.....net
Brook's Crank.....net list
" Pull.....dis 15 %
Hart Mfg. Co., Crank and Pull.....new list dis 50 %
Cow—Common Wrought.....new list dis 33⅓ %
Western.....new list dis 33⅓ %
Kentucky "Star".....new list dis 20 %
Dodge's Genuine Kentucky.....new list dis 25 %
Yaw's Genuine.....dis 20 %

Bellows.
Blacksmiths'.....dis 10 %
Moulders'.....dis 15 %

Blind Fasteners.
Van Sand's.....℘ gross $14 00
Washburn's Patent.....℘ gross 14 00
Merriman's.....add 25 @ 40 %

Blind Staples.
Boardman's Patent, ½ in. and larger.....℘ ℔ 37½c
" ⅜ in.....42 c

Bolts.
Carriage and Tire, Ætna Nut Co.....dis 60 %
Stove, Ætna Nut Co.....dis 10&5 %
Cast Iron Barrel, Shutter, &c.....old list dis 50&10 %
Wrought Iron Barrel.....net
" " Square.....dis 10&10 %
Carriage and Tire, Common.....dis 70&10 %
" " " Norway Iron.....dis 40 %
Star, Philadelphia.....dis 50 @ 50&10 %
Eagle, Philadelphia.....dis 50 @ 50&10 %
Philadelphia Pattern, P. S. & W.....dis 50&10 %
Carriage and Tire, R. B. & W.....old list dis 50&5 %
Plow, R. B. & W.....dis 30 %
Stove, R. B. & W.....dis 10 %
" Shelton Co. Shaved Heads.....dis 10 %
Union Nut Co., old list.....dis 50&15 %
Machine.....dis 25 @ 30 %

Borax.—Per case of 100 lbs.....℘ ℔ 22c

Boring Machines.
Kellogg's.....dis 10 @ 15 %
Snell Mfg. Co., Rice's Patent.....dis 15 %
" " Regular.....dis 15 %
Douglas Mfg. Co.....dis 20 %
Hovey's Angle.....$6 00 @ 6 25
" Upright.....4 25 @ 4 50
Morticing Machines each.....$18 00

Bow Pins......dis 45 @ 50 %

Braces.
Barber's Patent.....dis 40 %
Wilson Mfg. Co.....net @ add 5 %
Spofford's Patent.....dis 40 %
Noble's Patent.....dis 33⅓ %
Bartholomew's American Ball.....dis 10&10 %
" Patent Grip.....dis 40 %
Q. S. Backus & Co.....dis 30&10 %

Bung Hole Borers.
Common and Ring.....dis 20 %
Enterprise Mfg. Co.....dis 20&5 %
Ives' Tap Borers.....dis 20 %

Butchers' Cleavers.
Bradley's.....dis 15 %
Beatty's.....new list dis 10 %

2	3	4	5	6	7	8	9
$19·00	$21·50	$24·00	$27·00	$30·00	$33·50	$36·50	$40·00

Hart Mfg. Co.....dis 45&10 %

0	1	2	3	4	5	6
$25·25	$29·75	$30·25	$38·75	$43·55	$48·50	$54·00

Butts.
Wrought Brass.....new list dis 20 %
Cast Fast Joint, Narrow.....dis 40 %
" " Broad.....dis 40 %
Cast Loose Joint.....dis 50 %
" " Mayer.....dis 40 %
" " Parliament.....dis 40 %
Loose Pin.....dis 40&10 %
Wrought Fast Joint, Narrow.....dis 30 @ 30&5 %
Wrought Broad.....dis 35 %
" Loose Joint.....dis 35 %
Wrought Table and Back Flaps.....dis 25 @ 25&5 %
Cast Butts, Ohio Butt Co.—
Narrow Fast, Drilled and Wire Jointed (old list).....dis 35 %
Broad Fast, Drilled and Wire Jointed.....dis 35 %
Broad, Loose, Drilled and Wire Jointed.....dis 45 %
Silver Tipped.....dis 45 %
Loose Joint, Japanned.....dis 25 %
Loose Joint, Acorn and Silver Tipped.....dis 40 %
Palmer Blind Butts.....dis 30&10 %
Nicholson Blind Butts.....dis 40&10 %
Parker's Blind Butts.....dis 40&10 %
A. S. Parker's.....dis 40&10 %
Clark's Surface Blind Hinges. Nos. 1, 3 and 5..dis 40&10 %
" " " " No. 20.....dis 30&5 %
" Mortise " ".....dis 30&5 %
Seymour's.....dis 40&10 %
Sheard's.....dis 40&10 %
Garretson's.....dis 40&10 %
Standard.....dis 40&10 %
Union Mfg. Co.—
Drilled and Wired Cast Fast.....dis 35 %
" " " " Loose.....dis 45 %
Loose Joint Japanned or Silvered Acorn.....dis 40 %
" " Figured Enameled.....dis 25 %
" " Nickel Capped.....dis 30 %
" " Solid Bronze.....dis 10 %

Caps—Percussion, per 1000.
G. D.....40c
Ely's E. B.....1-4s, 60c. ; 1-10s, 67½c., gold
" Double Waterproof, 1-4s, $1·50 ; 1-10s, $1·57½c., gold
Colt's.....1-4s, 72½c ; 1-10s, 82½c., gold

Cartridges.
Metallic.....dis 50 %

Cards.
Horse and Curry.....dis 25&10 %
Cotton.....new list dis 10&10 %
Wool.....new list dis 10&10 %

Casters.
Iron and Wood Wheel Plate.....new list dis 20&10 %
Brass Wheel Plate.....new list dis 20&10 %
Porcelain Wheel Plate.....new list dis 20&10 %

Chain.
English Coil.....net gold

℘ ℔	13½	10	9½	8½c	8½	8¼c
	3-16	¼	5-16	⅜	7-16	½

Trace, 6½-10-2.....℘ pair, gold, 62c
Trace, 7-10-2.....℘ pair, gold, 67c
Galvanized Pump Chain.....℘ ℔ 14c
German Halter Chain.....new list, gold, dis 25 %
German Coil.....new list, gold, dis 25 %
Jack Chain, Iron.....dis 35 @ 40 %
" Brass.....dis 20 @ 25 %

Chalk.
White.....℘ gross, 60c
Red.....℘ gross, 80c
Blue.....℘ gross, 90c
Crayons.....℘ gross, 14c

Cherry Stoners.
"Family".....℘ doz $9·00

Chisels.
Socket Firmers.....dis 60&5 @ 60&10 %
Socket Framing.....dis 60&10 %
Socket Corner.....dis 60&10
Tanged Firmers.....dis 40 to 40&10 %
Butcher's.....$5·50 to £ gold—new list
Newbould's.....$5·50 to £ gold
Spear & Jackson's.....$5·50 to £ gold—new list

Clips, Axle.
Norway or Swedish.....dis 30 @ 30 %

Superior.....dis 40&5 %
"Star," Superior, Philadelphia.....dis 45&5 %

Coal Shovels.
Iron Handled.....℘ doz, $ 85 @ 1 25
Wooden Handled.....℘ doz, 1 00 @ 2 00

Coal Hods.
Smith, Burns & Co.....dis 25 %

No.	14	15	16	17	18	
Japanned	$12·00	12·75	13·50	15·50	18·00	per doz
Galvanized	15·00	16·00	17·50	19·50	22·50	"

No.	14	15	16	17	18	
Common Japanned	$9·00	9·75	10·50	12·00	13·50	per doz
" Galvanized	13·00	14·50	15·50	17·50	19·50	"

Common Japanned.....dis 50&10 %
" Galvanized.....dis 40&10 %

Cocks.
Brass Racking.....dis 20&10 %
Lock and Globe.....dis 20&10 %

Coffee Mills.
Board and Box.....dis 15 %
Increase Wilson's.....new list dis 10 %
Selsor's Pat.....$9·50, $10·50—dis 20 %
French Steel.....dis 10 @ 20 %
"Champion".....dis 20 %
Swift's.....dis 20 %

Compasses and Dividers.
Bemis.....dis 15&15 @ 20&5&15 %
Excelsior.....dis 30 %
Peck Stow & Wilcox.....dis 25 %

Coopers' Tools.
Bradley's.....dis 15 @ 20 %
Chas. E. Little.....dis 15 @ 20 %

Corn Knives and Cutters.
Bradley's.....list net

Crucibles.
Gautier & Co.....℘ No. 5½c

Curry Combs.
Hotchkiss' and Kellogg's, Iron and Brass.....dis 15 %
Fitch's.....dis 15&10 %
Ruggles'.....dis 15 @ 20 %
Rubber.....℘ doz, $9·00—dis 10 %
Schweitzer Mfg. Co.....dis 20 %

Curtain Pins.
Silvered Glass.....dis 40&10 %

Cutlery.
American Table.....
American Pocket.....dis 15 %

Door Springs.
Gray's.....$7·50 per doz—dis 40&10 %
Torrey's Patent.....$7·50 ℘ doz—dis 40 @ 40&10 %
Palmer's Japanned No. 6.....℘ doz $5·00
" Coppered ".....6·00
" Silvered ".....8·00
Challenge.—
Japanned.....℘ doz $4 00 @ 6 00
Bronzed.....℘ doz 5 00 @ 7 00
Nickel Plated.....℘ doz 6 50 @ 9 00
1 Gross lots.....dis 10 %
5 Gross lots.....dis 20 %

Drawing Knives.
.....dis 60 @ 60&10 %
Bradley's.....dis 25 %

Drills.
Ingersoll's Ratchet.....dis 25 %
Moore's Triple Acting Ratchet.....dis 20 %

Egg Beaters.
Monroe's.....℘ doz net $8·25 @ 8·50
Ashley's.....℘ doz net 2·25 @ 3·00
Earle's Patent.....℘ doz net 5·50 @ 6·00
Pratt's Aerating.....dis 10 %
Dover.....℘ doz net $6·00

Emery.
Genuine Chester—Regular Nos.....℘ ℔ 8c } dis 5 @ 10 %
" Flour and FF.....℘ ℔ 5c }
Washington Mills—Regular Nos.....℘ ℔ 8c
" Flour.....℘ ℔ 5c

Enameled and Tinned Ware.
Kettles.....dis 15 %
Sauce Pans, Glue Pots, &c.....dis 10 %

Faucets.
Cork Lined, Wood.....dis 60 %
Fenn's.....dis 50 %
" Cork Stops.....dis 40 %
Star.....dis 55&10 %
Frary's Patent Petroleum.....dis 10&10 %
Taylor's Pattern ".....dis 20&10 %
Wood and Metallic.....dis 40 %

Files.
Nicholson.....$5 00 to £ currency
Newbould's.....5 50 to £ gold
J. & Riley Carr's.....5 50 to £ gold
" " Rasps.....5 75 to £ gold
Stubs'.....8 50 to £ gold
Butcher's.....5 50 to £ gold
Spear & Jackson's.....5 50 to £ gold
Hargreaves, Smith & Co.'s.....5 00 to £ gold
Jowitt's.....5 25 to £ gold
"Western".....5 00 to £ net
W. K. & C. Peace's "Imperial".....5 25 to £ gold
R. Ibbotson.....5 00 to £ gold
Beam & Murray, "Cyclops".....4 85 to £ gold
Fisher's.....4 75 to £ gold
Goodlad's.....4 00 to £ gold
Moss & Gamble.....5 25 @ 5 50 to £ gold

Fluting Machines.
Acme.....$7 00 each net
Cole.....5 75 each net
Manville, No. 2.....7 00 each net
Knox, with 4-inch Rolls.....5 00 each net
" " 6 ".....6 00 each net
O. K.....6 50 each net
Peerless, 4-inch Rolls.....4 00 each net
" 5 ".....5 00 each net
Excelsior, No. 1.....4 75 each net
" No. 2.....6 50 each net
Diamond.....7 50 each net
Climax 7-inch Rolls.....8 00 each net
" 4½ ".....6 50 each net
Empire.....4 00 each net
Eureka, No. 1, 7-inch Roll.....8 00 each net
" No. 2, 5-inch Roll.....6 00 each net
K. F. M., 4-inch Roll.....5 50 each net
" 6-inch Roll.....6 00 each net
Myers' Fashion Fluter, 4½-inch Rolls.....3 00 each net
" Convex Brass Fluter, Sad Iron attachment..$1·75
Domestic Fluter.....$1·75 each net
Fairy, Self-Heater.....10 00 each net
National, 5-inch Rolls.....5 00 each net
Ponton Fluter, Bright.....$1 50—dis 25 %
" " Galvanized.....2 00—dis 25 %
Geneva Hand Fluter.....$1 25 each net

Fry Pans.
Tinned.....dis 20 %

℘ doz	$3·00	3·25	3·62	4·00	4·50	5·00	5·50	6·00	7·50
No.	0	1	2	3	4	5	6	7	8

Peck, Stow & Wilcox.....dis 25 %
Smith, Burns & Co., "Excelsior" Polished.....dis 20 %

℘ doz	$3·70	4·00	4·70	5·30	6·00	7·00	8·00	9·00
No.	1	2	3		5	6	7	8

Hammers.
Emmet Hammer Co.....dis 10 %
Maydole's.....new list net
Cheney's.....new list net
Verree.....dis 5 %
Yerks & Plumb.....new advanced list dis 5 @ 10 %
Minot & Co.....dis 15 %

Handles.
Hammer and Hatchet.....dis 10 %
Quakertown, Axe, Pick and Sledge.....dis 10 %
" Hammer and Hatchet.....net
Greensboro', Axe, Pick, Hammer, &c.....dis 10 %
Woolworth Axe, Pick and Sledge.....dis 10 %

Harness Snaps.
Judd's.....dis 30 %
Fitch's.....dis 30 %

Hatchets.
Isaiah Blood.....dis 10 %
Shingling, Nos. 1 2 3.....℘ doz $7 50 8 00 8 50
Claw, " 1 2 3.....℘ doz 8 50 9 00 9 50
Lathing, " 1 2 3.....℘ doz 7 50 8 00 8 50
Hunt's.....net
Shingling, Nos. 1 2 3.....℘ doz $7 25 8 00 8 75
Claw, " 1 2 3.....℘ doz 7 75 8 50 9 25
Lathing, " 1 2 3.....℘ doz 7 50 8 25 9 00
Hurd's.....dis 20 %
Shingling, Nos. 1 2 3.....℘ doz $8 00 8 50 9 00
Claw, " 1 2 3.....℘ doz 9 00 9 50 10 00
Lathing, " 1 2 3.....℘ doz 8 00 8 50 9 00
Newark's Edge Tool Co.'s.....dis 25 %
Shingling, Nos. 1 2 3.....℘ doz $6 50 7 00 7 50
Claw, " 1 2 3.....℘ doz 7 25 7 75 8 25
Lathing, " 1 2 3.....℘ doz 6 50 7 00 7 50
Yerks & Plumb.....dis 10 %
Shingling, Nos. 1 2 3.....℘ doz $7 00 7 50 8 00
Claw, " 1 2 3.....℘ doz 7 50 8 00 8 50
Lathing, " 1 2 3.....℘ doz 7 00 7 50 8 00
Simmon's.....dis 10 @ 15 %
Shingling, Nos. 0 1 2 3.....℘ doz $7 50 8 00 8 50 9 00
Claw, " 1 2 3.....℘ doz 9 00 9 50 10 00
Lathing, " 1 2 3.....℘ doz 8 00 8 50 9 00
Broad, " 1 2 3.....℘ doz 9 00 10 00 12 00
" " 4 5 6.....℘ doz 14 00 16 00 18 00
" " 7 8.....℘ doz 20 00 22 00
Elephant.....dis 20 %
Shingling, Nos. 1 2 3.....℘ doz $8 00 8 50 9 00
Claw, " 1 2 3.....℘ doz 9 00 9 50 10 00
Lathing, " 1 2 3.....℘ doz 8 00 8 50 9 00
J. P. Verree & Co.....dis 5 %
Shingling, Nos. 1 2 3.....℘ doz $7 00 7 50 8 00
Claw, " 1 2 3.....℘ doz 7 50 8 00 8 50
Lathing, " 1 2 3.....℘ doz 7 00 7 50 8 00
Underhill's.....dis 10 %
Shingling, Nos. 1 2 3.....℘ doz 7 25 8 00 8 75
Claw, " 1 2 3.....℘ doz 7 75 8 50 9 25
Lathing, " 1 2.....℘ doz 11 00 12 00

Hinges.
Wrought Strap and T.....dis 30&7½ %
Providence Plate..... { 6 and 8 in. list 11c. / over 8 in. list 9½c. } .dis 10&5 %
Screw Hook and Strap..... { 8, 10, 12 in. 8c / 14 to 36 in. 6½c } ....net
Heavy Welded Hook..... { 8 to 12 in., 9c / 14 in. & up, 8½c } dis 10 %
Screw Hook and Eye..... { ⅝ to 1 in., 9½c / ⅜ in. 10½c / ¼ in. 12½c } ....net

Hoes.
Solid Shank, C. S.....℘ doz $8 00—dis 20 @ 25 %
Socket.....℘ doz 9 00—dis 20 @ 25 %
Riveted Eye.....℘ doz 5 00—dis 20 @ 25 %
Grub.....dis 20 %
Planters'—Winsted.....add 10 %
Scovill.....add 33⅓ %
Scovill Pattern (Winsted).....add 20 %

Hooks.
Belt.....dis 50 %
Bench.....℘ doz net $5 00 @ 8 50
Wardrobe, Japanned.....new list dis 10&10 %
Hat and Coat ".....new list dis 15&10 %
Wrought Staples and Hooks and Staples.....dis 60 %
Wrought Hasps and Staples and Hasps, Hooks and Wrought Staples.....dis 60 %
Screw Hooks and Eyes, revised list.....dis 65&10 %

Horse Nails.
Putnam's.

No.	5	6	7	8	9	10
	32c	28c	26c	25c	24c	23c

In lots 2000 lbs. dis. 5 %.
Ausable

No.	5	6	7	8	9	10
	30c	7c	25c	24c	23c	22c

In lots of 1000 lbs. 5 % discount.
Brundage.

No.	5	6	7	8	9	10
	29c	26c	24c	23c	22c	21c

In lots of 500 lbs., dis. 5 %.
American Pressed.

No.	5	6	7	8	9	10
	22c	20c	20c	20c	20c	20c

In lots of 1300 lbs. dis 5 %.
Perkins Finished (ready to drive).

No.	5	6	7	8	9	10
	31c	28c	26c	25c	24c	23c

In lots of 1000 lbs. dis 5 %.
Buffalo Forged.

No.		6	7	8	9	10
		28c	26c	25c	24c	23c

Globe (Pointed and Polished).

No.	5	6	7	8	9	10
	31c	28c	26c	25c	24c	23c

In lots of 1000 lbs., 5 % discount.
National (Pointed and Polished), Extra Finish.

No.	5	6	7	8	9	10
	30c	27c	25c	24c	23c	22c

In lots of 1000 lbs., dis 5 %.
Vulcan (Blued, pointed, ready to drive).

No.	5	6	7	8	9	10
	33c	30c	28c	27c	26c	25c

In lots of 500 lbs., 5 % discount.
" 1000 lbs 7½ % discount.
New London Horse Nails.

No.		6	7	8	9	10
Great Western		27c	25c	24c	23c	22c
U B		29c	27c	26c	25c	24c

In lots of 1000 lbs., dis 5 %.
Star Brand.....℘ ℔ 16c
Morgan.....16c

Horse Shoes.
Burden.....℘ keg, $6 87½
Shoenberger.....℘ keg, 6 87½
R. I. Horse Shoe Co., Perkins Pattern.....℘ keg, 6 87½
" " R. I. Pattern.....℘ keg, 6 87½
Mule Shoes.....℘ keg, 7 87½

Kettles.
Enameled.....dis 15 %
Brass.....℘ ℔ 50c
In lots of 500 ℔s.....℘ ℔ net

Knives.
Ames' Butcher Knives.....dis 20 %
" Shoe ".....dis 15 %
Hay and Straw, "Wadsworth's".....dis 20 %

Knobs.
Base—Common.....net
" Plush Tip.....dis 10 %
" Elastic End.....reduced list dis 10&10 %
Trenton Lock Co.....dis 40 %

Lanterns.
Brady's Patent.....dis 10 %
Ætna.....dis 10 %
Yankee.....dis 10 %
De Beque.....dis 10 %

Locks and Latches.
Cabinet—Eagle.....dis 25 %
Cabinet—Gaylord.....dis 25 %
Trunk.....dis 10 %
Continental.....dis 15 %
Shepardson's.....dis 20 %
Trenton Lock Co.....dis 40 %
Branford.....dis 40 %
Norwich.....dis 40 %

Meat Cutters.
Dixon's (P. S. & W.).....dis 10 %

No.	1	2	3	4
℘ doz	$14 00	$17 00	$19 00	$30 00

Hales'.....dis 25 %

No.	11	12	13
℘ doz	$37 00	$33 00	$42 00

Perry's Champion (P. S. & W.).....dis 10 %

No.	200	300	400
℘ doz	$22 00	$27 00	$40 00

Woodruff's (P. S. & W.).....dis 10 %

No.	100	150
℘ doz	$15 00	$18 00

American.....dis 25 @ 25&5 %

No.	1	2	2½	3	4	5
Each	$6 00	$9 00	$14 00	$15 00	$30 00	$75 00

Molasses Gates.
Stebbins' Pattern.....dis 60&10 %
Tinned ends.....dis 40&10 %
Weed's Patent Self-Boring.....dis 15 %
" without Auger Bit.....dis 40 @ 50 %
Patent Self-Measuring.....per doz $42 00—dis 20 %

Mouse Traps.
Wood Choker.....℘ doz holes, 16 @ 20c

Nails.
10d Cut (Standard).....$4 75

Nuts and Washers.
Nuts.....large, 4c ; small, 5c off list.
Washers.....large, 5c ; small, 7c off list

Oil Stones.
Washita No. 1.....℘ ℔ 22c
" Slips.....℘ ℔ 44c
Hindostan.....℘ ℔ 6c dis 10 %
" Slips.....℘ ℔ 10c dis 10 %

Oilers.
Olmsted's.....dis 25&10 %
Broughton's.....dis 25&5 %
Common Zinc, Brass and Copper.....dis 25 %

Picks.

Washoe R. R. Nos.	1	2	3	4	5
℘ doz...	$14·00	15·00	16·00	17·00	18·00
Washoe Coal, " ...	$8·50	9·00	10·00	11·00	13·00 15·00

Picture Nails and Knobs.
Richards' Patent.....dis 40 @ 40&10 %

Planes.
Sandusky Tool Co., 1st quality.....dis 20 %
" " 2d " (Ogontz).....dis 20&10 %
Ohio Tool Co., 1st quality.....dis 20 %
" " 2d quality (Sciota).....dis 20&10 %
Owasco Tool Co., 1st quality.....dis 25 %
" " 2d quality.....dis 25&10 %
Plane Irons.....list net
" Butcher's.....$5 50 to £ gold—new list
" Spear & Jackson's..5 50 to £ gold—new list
" Sandusky Tool Co.....list net

Plumbs and Levels
Standard Rule Co.'s New Adjustable.....dis 50&10 %

Pumps.
Douglas Cistern, etc.....new list dis 25 %
" S. & F.....new list dis 20 %

Rakes.
Cast Steel.....dis 25 %

$8 00	9 00	10 00	11 00
8	10	12	14 teeth.

Razor Straps.
Genuine Emerson.....dis 25 %
" " in 5 gross lots.....dis 30 %
Hunt's.....dis 25&10 %
Chapman.....dis 10 @ 15 %

Rivets.
Iron and Tinned.....dis 25 %
Copper Rivets and Burrs.....

Rods.
Stair.....new list dis 25 %
American Patent.....dis 25 %

Rope.
Manilla.....Manufacturers' List
" .....½ inch and larger ℘ ℔ 18 c
" .....⅜ inch ℘ ℔ 18½c
" .....¼ and 5-16 inch ℘ ℔ 19 c
" Lath Yarn.....℘ ℔ 19 c
" Hay Rope.....℘ ℔ 18½c
Sisal.....½ inch and larger ℘ ℔ 16 c
" .....⅜ inch ℘ ℔ 16½c
" .....¼ and 5-16 inch ℘ ℔ 17 c
" Hay Rope.....℘ ℔ 16½c

Rules.
Hubbard & Curtiss Mfg. Co.....new list net
Stanley Rule and Level Co.'s Ivory.....dis 50&10 %
" " " Boxwood.....dis 6 &10 %
Standard Rule Co.'s Boxwood.....dis 60&10 %
" " " Ivory.....dis 50&10 %

Sad Irons.
.....℘ ℔ 4½c net
Sad Iron, Nickel Stand attached.....℘ ℔ 9c

Sand Paper—dis 7½ @ 10 %
Beader & Adamson's (Flint) 00 to 1½.....$4 50 ℘ ream
" " 2, 2½ & 3.....5 00 "
Assorted.....4 50 "
Star.....℘ ream $3 50
Emery.....℘ ream $7 00 @ 12 00
Cowdin Mfg. Co.....dis 7½ @ 10 %
Diamond Flint, 00 to 1½.....per ream $4 50
" " 2, 2½, 3 and assorted.....5 00
" Emery Paper.....per ream $7 00 to 12 00

Sash Locks.
Clark's.....dis 20 %
Ferguson's.....dis 20 @ 25 %
Champion.....℘ gross $13 00 @ $15 00
Norwich.....dis 15 %

Sash Weights.
Solid Eyes.....℘ ℔ 2½c

Sausage Fillers.
Perry's (P. S. & W.).....dis 10 %

No.	1	0
℘ doz	$15 00	$21 00

Saw Rods.
.....dis 10 %

Saws.
Spear & Jackson's.....$4 50 to £ gold
John Spear.....$3 60 to £ gold
Am. Saw Co.....new list
Perforated Cross Cuts, all kinds.....68c ℘ foot
Inserted Tooth.....dis 10 %
All else.....dis 12½ %
Disston's.....dis 12½ %
H. W. Peace's Circulars.....dis 10 %
Other kinds.....dis 10 %
Wm. McNiece's Hand, Cross Cut and Circular.....new list dis 10 %
E. M. Boynton's Lightning.....dis 30 %
" " Others.....dis 10 %

Scales.
Brown's.....dis 25&5 %
Fairbanks'.....new list dis 15 @ 20 %
Howe's.....dis 15&5 %
Shattuck's Counter and Union.....dis 15 %
National Platform.....dis 25 %
Eureka.....dis 25 %
Scale Beams.....dis 20 %
No. 1 300 to 1200 lbs.....90c ℘ cwt
No. 2 " ".....75c ℘ cwt

Screws.
American list of April 1, 1873.
Flat Head Iron.....dis 47½ %
Round Head Iron.....dis 45 %
Flat Head Brass.....dis 60 %
Round Head Brass.....dis 50 %
Round Head Silver Capped.....new list dis 20 %
Hand Rail.....dis 10 %
Coach or Lag.....dis 25 %
Coach, Patent Gimlet Point.....dis 5 %
Bed.....list net

Scythes.
Blood's German Steel, Grass.....℘ doz $9 00
" Cast " ".....℘ doz 10 00
" Silver " ".....℘ doz 11 00
" German " Grain.....℘ doz 13 00
" Cast " ".....℘ doz 14 00
" Red Rover.....12 00
" Young America.....9 50
" Silver Clipper.....12 63
Scythe Snaths.....dis 20 %

Shears.
Cast Steel.....dis 60&10 %
Conn. Cutlery Co., new brand.....dis 60 %
Rowe's.....dis 50&10 %

Shovels and Spades.
Ames.....new list dis 10 %
Rowland.....new list Feb. 8, '73, dis 20 %
Old Colony.....dis 2½ %

Shovels and Tongs.
Iron Head.....list net
Brass Head.....dis 5 %
Polished Steel.....new list dis 15 %

Slates.
Square Frames, Round Cornered, by case.....dis 60&10 %
Less than a case.....dis 50 @ 55 %
Oval Frames, by case.....dis 40 @ 40&10 %
Less than a case.....dis 30 %

Spoons.
Iron.....new advanced list, dis 10 %
By the case.....dis 20 %
Britannia.....dis 40 %
Plated A 1.....revised list dis 30&5 %
German Silver.....revised list dis 15&5 %
Tinned (P. S. & W.)—
Teas.....$1·50 ℘ gross, net
Tables.....2·75 " net

Stocks and Dies.
.....dis 15 %

Stove Polish.
Joseph Dixon's.....℘ gross, $6 00 @ 6 25
National.....℘ gross $4 75
Gold Medal.....℘ gross $6 00, dis 15 %
Gem.....℘ gross $5 00, dis 10 %

Squares.
Steel.....dis 50 % ; full cases, dis 50&10 %
Iron.....dis 50 % ; full cases, dis 50&10 %
Nickel Plated.....add $2 50 @ $4 00 ℘ doz net
Try Squares and T Bevels.....dis 45&10 %
Star Try Squares and Bevels.....dis 30 %

Tacks.
Full Weight American Iron.....dis 35&7½ %
Half Weight American Iron.....dis 67½&7½ %
Carpet.....dis 7½ %
Brads American Half Weight.....dis 50&7½ %
Finishing Nails.....½ ⅝ ¾ 1 1¼ in. and over
℘ ℔.....25c 20c 18c 14c 13c dis 7½ %
Trunk and Clout.....½ ⅝ ¾ 1 1¼ in. and over
℘ ℔.....25c 20c 18c 14c 13c dis 7½ %
Copper Tacks.....℘ ℔ 56c—dis 7½ %
Iron Shoe Nails, ℘ ℔ 4-8 and longer, 10½c ; 3½-8, 11c.....dis 7½ %
Double Pointed.....new list dis 33⅓ %

Tapes, Measuring.
American Flask and Cap Co.....dis 10&10 %
Eddy's.....dis 10&10 %

Toe Calks.
.....℘ ℔ 13c net

Tobacco Cutters.
Champion.....dis 20 %
Peck, Stow & Wilcox.....dis 10 %

Tinners' Tools and Machines.
P. S. & W.....list net

Traps.
Newhouse.....dis 20 %
Hotchkiss.....dis 20 %
Peck, Stow & Wilcox.....dis 30 %
Blake's Patent.....dis 15 @ 20 %

Vises.
Trenton Vises, Solid Box.
30 to 110 lbs.....17c
111 to 160 lbs.....18c
160 and over.....21½c
Peter Wright's.....℘ ℔ 15½c. gold
Wilson's Solid Box.....dis 10 @ 15 %
30 to 160 lbs.....18c
160 and upward.....21c
Backus & Union, Parallel.....dis 25 %
Buffalo, Parallel.....new list dis 15 %
Fisher & Norris' Double Screw Parallel...dis 15 @ 15&5 %

Wire.
Bright and Annealed.....Nos 0 @ 18 dis 30 @ 35 %
" " ".....19 @ 26 dis 40 @ 45 %
" " ".....27 @ 36 dis 45 @ 50 %
Coppered.....Nos. 0 @ 18 dis 22½ @ 27½ %
Galvanized, Nos. 0 to 12.....dis 35 @ 40 %
Galvanized, Nos. 13 to 18.....dis 40 @ 45
Tinned.....dis 15 @ 20 %
Cast Steel.....5 @ 10 %
Tinned Broom Wire.....dis 20 @ 25 %
Galvanized Telegraph, Nos. 8 and 9.....℘ ℔ 10c @ 11c
" " " 10 and 11.....℘ ℔ 11c @ 12c
" " " 12.....℘ ℔ 11½c @ 12½c
Annealed Fence, Nos. 8 and 9.....dis 30 @ 35 %
" Grape, " 10 to 14.....dis 30 @ 35 %
Fence Staples.....℘ ℔ 9 @ 9½ %
Stubs' Steel Wire.....$7 00 to ℔ gold

Wrenches.
American Adjustable.....dis 45 %
Baxter's Adjustable "S".....dis 20 %
" Diagonal.....dis 20 %
Collins & Co.'s.....new dis list 30 %
Coes Genuine.....dis 40 %
" Pattern (Wrought).....dis 50 %
" " (Malleable).....dis 50&10 %
Lindsay's Patent.....dis 25 %
Taft's Pattern.....dis 65&10 %
Davis' Patent Duplex.....new list dis 25 %

TIN WARE.

STAMPED TIN WARE.

Basins.
Wash Basins, Handled, Plain Stamped.....dis 20 %

Inch	10	11	11½
Per doz	$3·50	4·00	4·50

Wash Basins, Handled, Retinned.....dis 25 %

Inch	10	11	11½
Per doz	$4·00	4·50	5·00

Wash Basins, with Feet, Plain Stamped.....dis 20 %

Inch	10	11	11½	13½
Per doz	$2·00	2·50	2·85	3·75

Wash Basins, with Feet, Retinned.....dis 25 %

Inch	10	11	11½	13½
Per doz	$3·00	3·50	4·00	5·00

Wash Basins, Stamped.....dis 20 %

Inch	10	10½	11½
Per doz	$1·70	2·10	2·50
Inch Shallow	10		11
Per doz	$1·55		1·90

Wash Basins, Retinned.....dis 25 %

Inch	10	10½	11½
Per doz	$2·50	3·00	3·50
Inch Shallow	10		11
Per doz	$2·00		2·60

Covers.
Bucket.....net

	1 pt	1 qt.	2	3	4	6	10	12 qt.
Per gross	$1·75	2·15	3·20	3·60	4·40	5·50	7·00	10·75

Coffee Pot.....net

	3 pt.	2 qt.	3	4	6 qt.
Per gross	$ ·95	1·10	1·40	1·90	2·25

Pot.....net

Inch	7½	7¾	8¼	8¾	9¼	9¾	10¼
Per gross	$4·10	4·50	5·15	5·65	6·25	6·60	8·25
Inch	10¾	11¼	11¾	12¼	12¾	13¼	
Per gross	$8·95	9·60	10·20	12·25	13·50	15·00	

Tea Kettle Breasts and Covers.....net

Inch	6	6½	7	7½	8	8½	9
Per gross	$5·00	5·25	5·60	6·15	6·75	7·50	8·30
Inch	9½	10	10½	11	11½	12	13
Per gross	$8·65	11·50	12·00	12·25	13·00	17·00	18·00

Stove Pipe Collars, Tin.....net

Inch	4	4½	5	5½	6	7
Per gross	$3·40	3·65	4·40	4·90	5·35	6·35

Dipper Bowls, Plain Stamped.....dis 25 %
Pints.... ½ ¾ 1 1½ Quarts.... 1 2 2½
Per doz. ·50 ·60 ·70 ·80 Per doz... ·90 1·25 1·50
Dipper Bowls, Retinned.....dis 25 %
Pints.... ½ ¾ 1 1½ Quarts.... 1 2 2½
Per doz. ·75 ·95 1·00 1·15 Per doz... 1·30 1·55 1·80

Pans.
Dish Pans, Tinned.....dis 30 %

Quarts	7	8	10	14	17	21	30
Per doz	8·50	9·50	11·00	13·00	16·00	19·00	30·00

Milk Pans, Plain Stamped.....dis 20 %

Quarts	½	1	1½	2	3	4	5	6	8	10
Per doz	$ ·85	1·05	1·20	1·45	1·65	2·40	2·90	3·15	4·40	5·00

Milk Pans, Retinned.....dis 25 %

Quarts	½	1	1½	2	3	4	5	6	8	10
Per doz	$1·15	1·40	1·60	1·90	2·15	3·00	3·40	3·80	5·20	6·00

Pie Plates, Deep.....net

Inch	6	7	8	9	10	11	9	10
Per gross	$3·40	4·25	5·50	6·00	8·50	10·00	7·25	9·25

JAPANNED TIN WARE.

Cannisters, Common.....net

Pound	½	1	2	3
Per doz	$ ·15	1·20	1·70	2·20

Cannisters, Hinged.....net

Pound	1	1½	2	3	4	6
Per doz	$1·35	1·75	2·30	2·60	3·00	3·50

Candlesticks, Japanned.....net

No	1	2
Per gross	$6·00	5·50

Cake Boxes, Round.....net, per nest, $2·40
" Square.....net, per nest, 3·40
Dust Pans, Corrugated.....net, per gross, $18·00
Grates, Box.....net, per gross $8·20
Molasses Cups.....net

Pint	½	1	2
Per gross	$10·40	12·80	24·00

Pepper Boxes Japanned.....net
Per gross.....Small, $2·50 ; Large, $3·20
Toy Banks, House.....net

No.	1	2
Per gross	$6·00	4·25

Toy Banks, Gothic.....net

No.	1	2
Per gross	$5·25	3·25

Toy Cups, Straight.....net

No.	1	2	3
Per gross	$2·40	2·80	2·40

Toy Cups, Flaring.....net

No.	1	2
Per gross	$0·60	3·20

Toy Pails, Covered.....net

No	1	2
Per gross	$3·25	2·85

Toy Rattles.....net, per gross, $1·75
Trunks, Wire Handled.....net, per nest (5) $1·25
Spittoons, Tin.....net, per gross $22·00

PLANISHED TIN WARE.

Planished Coffee Pots, Round.....dis 20 %

Each	·60	·75	·85	·95	1·10	1·25	1·30	1·40
Pints	1	2	3	4	5	6	7	8

Planished Tea Pots, Round.....dis 20 %

Each	·70	·80	·95	1·05	1·25
Pints	2	3	4	5	6

Planished Tea Pots, Oval.....dis 20 %

Each	·70	·80	·90	1·05	1·15	1·40	1·75
Pints	1	2	3	4	5	6	8

METALS.

IRON.—DUTY: Bars, 1 to 1½ cents per lb., Sheet, Band, Hoop and Scroll, 1½ to 1¾ cents per lb. Provided, that none of the above Iron shall pay a less rate of duty than 35 per cent. Pig, $7 per ton; Polished Sheets, 3 cents per lb.; Wrought Scrap, $8 per ton; Cast Scrap, $6 per ton. All subject to a reduction of 10 per cent. Railroad, 70 cents per 100 lbs. Boiler and Plate, 1½ cents per lb.

Pig Iron—AMERICAN.
Foundry No. 1.....℘ ton, $35 00 @ 38 00
Foundry No. 2.....30 00 @ 32 00
Gray Forge.....25 00 @ 27 00
White and Mottled.....

SCOTCH.
Gartsherrie.....
Coltness.....45 00 @
Glengarnock.....
Eglinton.....38 00 @ 39 00

Bar Iron.
Am. Refined, at mill.....℘ ℔ 3·3

Rails.
Welsh, gold.....℘ ton, 60 00 @ 62 00
American, at works, currency.....68 00 @ 70 00
Old Rails, currency.....39 00 @ 40 00

Scrap.
Wrought Scrap, from yard.....38 00 @ 40 00

Bar Iron from Store.
Common Iron.
¾ to 2 in. round and square.....℘ ton, $ 77 50
⅝x9-16 in " ".....82 50
½ in. " ".....85 00
2¼ to 3 in. ".....82 50
1 to 6 in. wide x ⅜ and 1 in. thick.....77 50
1¼ to 6 in wide x ¼ & 5-16 in. thick.....83 50
1 and 1¼ in. x ¼ and 5-16.....90 00
Swedish Iron.
1¼x⅜ and ½.....182 50
1¼x⅜ to ⅝, and ¾ square.....177 50
1½ to 5x⅜ to ¾ and ⅝ to 2-in. square.....172 50
6 to 8x⅜ and ½.....182 50
Refined Iron.
¾ to 2 in. round and square.....82 50
1 to 6 in. wide x ⅜ to 1 thick.....82 50
1¼ to 6 in wide x ¼ and 5-16 thick.....87 50
1 and 1¼ x ¼ and 5-16.....92 50
Large Rounds.
2½ to 2¾, round and square.....92 50
3, 3¼ and 3½ in.....97 50
3¾ and 4 in.....107 50
Rods—⅝ and 11-16, round and square.....87 50
⅜ and 9-16, " ".....92 50
7-16, " ".....95 00
⅜, " ".....100 00
5-16, " ".....105 00
¼, " ".....119 00
3-16, " ".....135 00
Band Iron.
1 to 6 in. x 3-16 to No. 12.....102 50
Horse Shoe Iron.
⅜ and ¼ x ⅜, to ½.....} 120 00
1 x ⅜, to ⅝.....}
Ovals, Half Ovals and Half Rounds.
¾ to 1½.....℘ ton, $107 50
⅝ and 11-16.....112 50
½ and 9-16.....117 50
7-16.....
⅜.....
Nail Rods
Best Norway.....℘ ℔ 9c
Norway Shapes
½ to 2 in. x ¼ to ⅝.....} 8½c
¼ to ¾ square.....}
Norway Bar
¾ to 2 in. square.....
Spring Steel
1 to 4 in. wide.....8½c
Tire Steel
¾ to 1½ x ¼ and 5-16.....8½c
⅝ & 1 x 3-16.....9½c
⅝ & 1 x ⅛.....
Toe Calk Steel
¾ to ⅞ x ⅜ to ½.....8½c
Plow Steel
6 to 16 wide.....9½c
Sleigh Shoe Steel
¾ to 1½ x ⅜ to ⅝
Hoops, ⅝ x No. 22.....℘ ton, $165 00
" ¾ x No. 20.....150 00
" ⅞ x No. 19.....145 00
" 1 and 1¼ x No. 18.....127 50
" 1¼ to 2 and 1x1¼ x No. 18 and 14.....117 50
Scroll Iron—½ x 12.....135 00
" ½ x 10.....135 00
" ½ x 3-16.....130 00
" ½ x ¼.....125 00
" ⅝ x 11.....135 00
" ⅝ x 12.....122 50
" ⅝ x 10.....120 00
" ⅝ x 3-16.....117 50
" ⅝ x ¼.....115 00
" ¾ x 12.....117 50
" ¾ x 10.....115 00
" ¾ x 3-16.....112 50
" ¾ x ¼.....110 00
" ⅞ x 14.....
" ⅞ x 12.....112 50
" ⅞ x 10.....110 00
" ⅞ x 3-16.....107 50
" ⅞ x ¼.....105 00
" 1 x 14.....122 50

Sheet Iron.

		Common English.	R. G. American.
Nos. 10 to 20	℘ ℔	5½c	7c
21 to 24	"	6½c	7½c
25 to 26	"	6½c	7½c
27	"	7c	7¾c
28	"	7½c	8c
30	"	8c	

Galvanized, 10 to 20, prime.....℘ ℔ 11c
" 21 to 24.....12c
" 25 to 26.....13c
" 27.....14c
Patent Polished.....15c
Russia, Nos. 8 to 11.....℘ ℔ 21c
" Nos. 12 to 16.....20½c
" Stained, No. 1.....19c
Belgian.....
One piece Corrugated Sheet Iron Elbows.

CHARCOAL IRON.

4½	5	5½	6	7 inch.
$3·75	4·25	5·25	5·25	6·80 per doz.

RUSSIA IRON.

4½	5	5½	6	7 inch.
$8·00	10·00	13·00	13·00	14·00 per doz.

Adjustable Stove Pipe Elbows.

CHARCOAL IRON.

4	4½	5	5½	6	7 inch.
$3·25	3·75	4·25	4·75	5·25	6·25 per doz.

RUSSIA IRON.

4	4½	5	5½	6	7 inch.
$7.00	8·00	9·50	10·75	11·75	13·75 per doz.

Discount on orders of 10 doz. 5 %.
" " " 25 " 10 %.

Brass.

ROLLED AND IN SHEETS.
(Brown & Sharp's Gauge.*)
For the purchase of 100 pounds and over at one time

HIGH BRASS.
All Nos. to No. 28, and widths 14 in. and under.....40c
All Nos. to No. 28, inclusive, and widths over 14 to 20 in. inclusive.....43c
Over 20 in. to 30 in. inclusive.....46c
½c ℘ ℔ advance on each No. above No. 28 to 38, inclusive.
All Brass thinner than No. 38 is Platers' Brass at.....59c
Sheets 24x48 in., and all sheets cut to particular sizes and lengths.....46c
Printers' Rules.....50c
Sheets wider than 30 in. and under 40 in.....50c
" 40 in. and over.....52c
Circular sheets, in diam. from 4 in. to 14 inclusive.....50c
" " " over 14 in. to 20 ".....53c
" " " 20 in. to 30 ".....56c
" " " 30 in. to 40 ".....59c
" " " 40 in.....62c

LOW BRASS.
4c ℘ ℔ more than High Brass.
Gilding Metals, 7c ℘ ℔ more than High Brass.
Platers' or Gold Metal { In Bars.....52c / Sawed.....55c }

FOR SLITTING: Metal in Width.
2 in. to ¼ in., to No. 30, inclusive, 1c ℘ ℔ advance.
2 in. to 1 in., thinner than No. 30, 2c ℘ ℔ advance.
2 in. to ¼ in., " " 30, 3c " "
¼ in. and less to No. 30, 2c ℘ ℔ advance.
¼ in. and less thinner than No. 30, 5c ℘ ℔ advance.
10 % discount.

SCRAP—NEW METAL.
High Brass Scrap, 19 cents, net.
Low " 21 " "
Gilding, 23 cents, net.
Turnings, Filings and Chips, half the price of Scrap net.

BRASS AND COPPER WIRE.
(Stub's Wire Gauge).

	High Brass.	Low Brass.	Gild'g and Cop'r.
Nos. 0 to 20	43	47	54
Nos. 21, 22, 23	44	48	54
Nos. 24 and 25	45	49	56

Brass Wire straightened and cut, 4 cents advance
10 % discount.

FINE WIRE—NET PRICES.

	High Brass.	Low Brass.	Gild'g and Cop'r.
No. 26	0·45	0·49	0·58
No. 27	0·48	0·52	0·58
No. 28	0·50	0·54	0·60
No. 29	0·52	0·56	0·62
No. 30	0·54	0·58	0·66
No. 31	0·56	0·60	0·70
No. 32	0·60	0·64	0·75
No. 33	0·64	0·68	0·85
No. 34	0·68	0·72	0·95
No. 35	0·73	0·77	1·07
No. 36	0·82	0·86	1·19
No. 37	1·02	1·02	1·32
No. 38	1·22	1·22	1·62

Ten cents per pound extra for Spooling.

TUBING.

(Brown & Sharpe's Gauge.)

Plain to No. 20, inclusive ₱ lb $0,58
Nos. 21, 22, 23, 3c. advance on List for each No.
Nos. 24, 25, 26, 4c. " "
Above No. 26 special rates.
Plain Tube, 1-4 Inch 74
" 5-16 " 1 59
" 1-8 " 1 84
All Mandrel-Drawn Tubes 5c. advance on List.
Fancy Tubing 4c. advance on List above Plain.
English, Scotch, and Extra Patterns Fancy Tubing to No. 30.
Tubing sawed or cut 2 to 4 ft. long, 3c. advance on List.
Add to two cents a half-cent for each additional cutting under two feet. 10 % discount.
Brass Door Rail Polished—54 cents per ft.—10 %

BELT AND HOSE COPPER RIVETS AND BURS.

Price per ₱	57	58	60	62	64	66	68	72	76c
Nos.	7	8	9	10	11	12	13	14	15

Braziers Rivets, 51 cents per pound discount 10 %.

GERMAN SILVER MARKET METAL AND WIRE.

	Market Metal.	Wire
4 per cent. 12 inch. to No. 26	1·00	1·15
6 " " "	1·10	1·25
10 " " "	1·25	1·45
15 " " "	1·35	1·60
18 " " "	1·45	1·75
20 " " "	1·55	

Discount 10 %.
German Silver Sheets over 12 inches wide and weighing more than 10 lbs $2·25 ₱ lb net
Advance two cents for each additional inch in width above 12 inches, and two cents per pound on each No. thinner than Nos. 26 to 36, inclusive.
All German Silver thinner than No. 36 is Platers' at 50 cents per pound additional.
German Silver Scrap, one-third less than net price of 12 inch Market Metal; German Silver Turnings, Filings and Chips, half the price of Scrap.
* Brown & Sharp's Gauge is about two numbers finer than Stubs' Wire Gauge.

COPPER—Duty: Pig, Bar and Ingot, 5c.; old copper, 4 cents ₱ lb; Manufactured (including all articles of which copper is a component of chief value) 45 % ad valorem. All subject to a reduction of 10 per cent.

American Ingot ₱ lb 25 @ 26½c
English " "

SHEATHING, BRAZIERS' COPPER, BOLTS, &C.

Braziers Copper, ordinary sizes, over 16 oz., per square foot 40c ₱ lb
Braziers' Copper, ordinary sizes, 16 oz. and over 12 oz., per square foot 43c. "
Braziers Copper, 12 oz. per square foot and lighter 46c. "
Circles less than 24 inch in diameter 43c. "
Circles, 24 inch diameter and over 46c. "
Segment and Pattern Sheets 43c. "
Locomotive Fire Box Sheets 40c. "
Sheathing Copper, over 12 oz. per sq. ft. 38c. "
" " 12 oz. ₱ sq. ft. and lighter 46c. "
Bolt Copper 40c. "
No Copper is Sheathing except 14x48 inches, and not to exceed 34 oz. to the square foot.

TINNING.

14x48, by the case 8c. ₱ sheet
14x48, less than case 10c. "
Boiler Sizes, 7 and 8 inch 12c. "
" 9 inch 15c. "
Other sizes not larger than 30x60 2½c. ₱ sq.
Larger than 30x60 5c. "
Copper Bottoms, 38c. ₱ lb net

O'NEILL'S PATENT PLANISHED COPPER.

14x48.
14 and 16 oz. and heavier 44c. By the case, 43c. ₱ lb
12 oz. and lighter 47c. " " 46c. "

Boiler Sizes.

7 in., 14x52. 8 in., 4x56. 9 in., 14x60
14 and 16 oz. and heavier 46c. By the case, 45c. ₱ lb
(And all sizes not over 20 inches wide.)
30x60
14 and 16 oz. and heavier 48c. ₱ lb
12 oz. 51c. "

LEAD—Duty: Pig, $2 per 100 lbs.; old Lead, 1½ cent per lb.; Pipe and Sheet, 2½ cents per lb. All subject to a reduction of 10 per cent.

Spanish 6¾ @ 6¾c gold
German Refined 6¾ @ 6¾c gold
English @ 7¼c gold
Bar dis 10 % 5¾c.
Pipe dis 10 % 10½c.
Tin Lined Pipe dis 10 % 16½c.
Sheet dis 10 % 10½c.
Shot dis 10 % Drop, 11¼c.; Bucks, 12¼c.
Solder No. 1, 20c. @ 21c. No. 2, 19c. @ 20c.

STEEL—Duty: Bars, Ingots, Sheets and Coils, valued at 7 cents per lb., or under, 2¼ cents; over 7 cents, and not above 11, 3 cents per lb.; over 11, 3¼ cents per lb. and 10 % ad val. Railway Bars 1¼ cents per lb. Railway Bars, in part Steel, 1 cent per lb. All subject to a reduction of 10 per cent. Provided, that Metal cemented, cast or made from Iron by the Bessemer or pneumatic process, of whatever form or description, shall be classed as Steel.

American Cast Steel.

Tool 17c
Spring 18½c
Homogeneous 18½c
Tire 12½ @ 18½c
Machinery (round and square) 11½ @ 12c
File 12½c
Sheet 14 @ 16c
Saw Plate, mill and muley 14 @ 16½c
Saw Plate, gang and X cut 13 @ 14c
" circular as to size 18 @ 30c

Chrome Steel.

Tool ₱ lb 20 @ 21c
Tool, extra fine " 40 @ 75c
Spring ₱ lb 12c and upward
Machinery ₱ lb 14c.
Hammer " 15c.
Gun or Homogeneous " 16c.

English Steel,—payable in gold, dis 5 % cash.

Best Cast ₱ lb 19½c
Extra Cast " 20½c
Round Machinery, Cast " 12½c
Swaged, Cast " 21½c
Best Double Shear " 19½c
Blister, 1st quality " 15½c
" 2d quality " 13½c
" 3d quality " 11½c
German Steel, Best " 12½c
do Eagle " 11½c
do 3d quality " 10½c
Sheet Cast Steel, 1st quality " 19½c
" 2d quality " 17½c

SPELTER—Duty: In Pigs, Bars and Plates, $1 50 per 100 lbs.—less 10 per cent.

Silesian, cash 7¼ @ 7¾c., gold
American " 8 @ 11c., currency

TIN—Duty: Plates, Sheets, Tagger and Terne, 15 per cent. ad val.; Electro-galvanized Plates, 2 cents per lb.; Manufactures of, not enumerated, 35 per cent. ad val.—all subject to a reduction of 10 per cent. Bars, Bancs or Block, and Pigs, free.

Bancs ₱ lb 34c., gold
Straits ₱ lb 30c., gold
English ₱ lb 28c., gold

CHARCOAL TIN PLATE.

I C 10x14, Prime Charcoal 12·0
12x12, " 12·50
14x20, " 12·75
I X 10x14, " 14·25
12x12, " 14·75
14x20, " 15·25
For each additional X add 2·25

COKE TIN PLATE.

	Best.	2d Quality.	Ordinary
I C 10x14	$11·50	$10·50	9·00 @ $10·00
I C 12x12	12·00	11·00	
I C 14x20	12·00	11·00	

TERNE PLATE.

	Prime Char.	2d qual.	Coke.
I C 14x20	$11·50	11·00	9·50 @ 10·50
I X 14x20	13·75		

ZINC.—Duty: Pig or Block, $1 50 per 100 lbs. Sheet, 2½c. ₱ lb. All subject to a reduction of 10 per cent.

Sheet cask 10c
" open 10½c

Paper Stock, Old Metals, &c.

(*Dealers' Selling Prices.*)

Canvas linen 6 @
" cotton, No. 1 4¾ @ 7
" " No. 2 4
White linen rags, No. 1 6¼ @
" " No. 2 4¾ @ 5
Colored 2¾ @
Mixed woolens 2 @ 3
Soft woolens 6 @ 7
Gunny bagging 1¼ @ 1¾
Jute Butts 1¼ @ 1¾
Kentucky bagging 3¼ @ 3¾
Book stock 4 @ 4¾
Waste paper and scraps 1½ @ 3
Rope cuttings 1½ @ 3
Kentucky Bale rope 4 @ 4¾
Dakum junk, No. 1 5 @ 5½
" " No. 2 3¼ @ 4
Grass rope 1¾ @ 2
Tarred Stuffing 1 @ 1

Old Metal.

Copper 16 @ 17
Yellow metal 16 @ 18
Brass 17 @ 18
Heavy Composition 21 @ 23
Old lead, solid 6½ @ 6¾
Tea lead 5¾
Wrought iron 1½ @ 1¾
Sheet iron 0¾ @
Cast iron 1 @ 1¼
Machinery iron 1½ @ 1⅝
Zinc 6
Pewter, No. 1 23 @ 25
" No. 2 10 @ 12
Spelter 7

Paints, Oils, etc.

Paints.

Black, lamp—Coach Painters ₱ lb 20c
" " Ordinary 6c
" Ivory Drop, fair 15c
" " best 25c
Black Paint, in oil kegs, &c.; asst'd cans, 11 c
Blue, Prussian, fair to best 50 @ 75c
" " " " in oil 35 @ 65c
" Chinese, dry 8c
" Ultamarine 25 @ 90c
Brown, Spanish 1¼c
" Van Dyke 9c
Carmine, &c $12 @
Green, Chrome 15 @ 23c
" " in oil 18 @ 25c
" Paris good, 30c; best, 40c
" " in oil " 30c; " 45c
Mineral Paints 1¼ @ 4c
Orange Mineral 14½c
Red Lead, American 9¼c
" English 10½c
" Venetian (N. C.) dry 2¼c
" in oil asst'd cans, 11c; kegs, 8½c
" Indian, dry 10c
Rose Pink 18c
Sienna, American, Raw 4c
" Burnt 4½c
" " in oil 16 @ 20c
" Raw " 15 @ 25c
Umber, Burnt 4 @ 8c
" in oil 16 @ 21c
" Raw 3½ @ 7½c
" " in oil 16 @ 22c
Vermillion, Chinese $1 55
" English 1 48
" Trieste 1 38
" American, Common 23c
White Lead, American, pure dry 11 c
" " in oil 11¼c
White, Paris, English, prime in bbls. 2½ @ 2¾c
Yellow Ochre French 2¼ @ 2½c
" " in oil asst'd cans, 11c; kegs, 8½c
Vermont in casks 1½c
Chrome 17 @ 21c
" in oil 18 @ 23c
Zinc White, American No. 1 dry 9c
" I, in oil 11c
" French (Paris) 11 c
" " in oil 12 c

Oils.

Linseed Raw ₱ gal. casks, 95c. bbls. 96c.
" Boiled " $1·00 " $1·01
Whale, Crude "
" Bleached Winter "
Sperm, Crude "
" Winter unbleached "
" Bleached " 1·80
Seal, Extra Refined " 87½c
Lard, Pure Winter " 90c
" Spring " 76c
Cotton seed, Crude " 55c
" Southern Yellow " 65c
" White " 75c
Neatsfoot, Winter $1·10 @ $1·35
Natural Lubricating bbls, 45c

Sundries.

Asphaltum 9c
Benzine ₱ gal. 16c
Chalk 1½c
" Block
Dryer, Patent, Am'n asst'd cans, 10½c.; kegs, 9c
" " English " 11c.; " 9c
Flocks 50c
Frostings 38 @ 47c
Glue, White 20c
" Sheet 9c
Glaziers' Points, Zinc 36c
Gum, Copal 25c
" Damar 66c
" Shellac, English 46c
" dark 10c
Litharge 6 @ 6c
Pumice Stone, selected lumps 4c
" powdered 3½c
Putty in bladders 3c
" in bulk 8c
Rotton Stone, soft, English 42c
Spirits Turpentine 1½c
Whiting, Spanish

Glass.

French Window—1st, 2d, 3d, and 4th qualities. Per box of 50 feet.

SINGLE.

SIZES.	I.	II.	III.	IV.
6 x 8 to 7 x 9	$8·00	$7·00	$6·75	$6·00
8 x 10 to 10 x 14	8·50	8·00	7·25	6·50
10 x 15 to 12 x 16	9·00	8·50	8·00	6·75
13 x 16 to 16 x 20	9·50	9·00	8·50	7·75
15 x 22 to 15 x 30	11·75	10·50	10·00	8·00
16 x 30 to 22 x 30	14·25	12·25	11·00	9·50
15 x 38 to 22 x 36	15·00	13·50	12·00	
24 x 36 to 24 x 40	15·75	14·25	12·50	
28 x 38 to 28 x 42	16·25	14·75	13·25	
28 x 44 to 28 x 50	17·25	15·75	14·25	
30 x 50 to 30 x 54	20·50	17·00	15·50	
32 x 54 to 34 x 56	21·50	19·25	17·50	
34 x 58 to 34 x 60	23·00	21·50	20·25	
36 x 60 to 40 x 60	26·50	24·25	23·00	

DOUBLE.

SIZES.	I.	II.	III.	IV.
6 x 8 to 7 x 9	$13·00	$12·00	$11·50	$10·00
8 x 10 to 10 x 14	14·00	12·75	12·00	10·75
10 x 15 to 12 x 16	15·00	14·00	13·25	11·25
13 x 16 to 16 x 20	16·00	15·00	14·00	12·50
15 x 22 to 15 x 30	20·00	17·50	16·50	13·25
16 x 30 to 22 x 30	22·00	19·25	17·75	15·00
15 x 38 to 22 x 36	25·75	20·50	19·25	
24 x 36 to 24 x 40	24·75	22·50	20·00	
28 x 38 to 28 x 42	26·00	23·50	21·00	
28 x 44 to 28 x 50	27·50	25·00	22·50	
30 x 50 to 30 x 54	31·00	26·50	24·00	
32 x 54 to 34 x 56	32·50	29·00	26·50	
34 x 58 to 34 x 60	34·50	33·00	31·00	
36 x 60 to 40 x 60	39·50	36·50	35·00	

Sizes above—$12·00 per box extra for every 5 inches.
Discount to the trade 50&5 to 50&10 per cent.
An additional 10 per cent. will be charged for all Glass more than 40 inches wide. All sizes above 52 inches in length, and not making more than 81 united inches, will be charged in the 84 united inches bracket.

The Iron Age Directory

and Index to Advertisements.

Hardware.

ROY & COMPANY,

West Troy, N. Y.,

Manufacturers of

Wrought Iron Butts, Strap and T Hinges,

PLATE AND HOOK HINGES,

Cold Pressed Nuts and Washers, Felloe Clips, &c

JOHN L. FISHER, Agent, 116 Duane Street, New York.

SPEAR & JACKSON,

Sheffield, England,

MANUFACTURERS OF

Saws, Files, Edge Tools and Steel

JOHN L. FISHER. Agent,

116 Duane Street, NEW YORK.

STANLEY WORKS,

MANUFACTURERS OF

Wrought Butts, Strap and T Hinges.
Bronzed Butts and Bolts.
Wrought Barrel, Square and Shutter Bolts.
Wrought Chest Handles, Washers, Flush Bolts, &c

79 CHAMBERS ST., NEW YORK.

Factory at New Britain, CONNECTICUT.

HILGER & SONS,

87 Chambers and 69 Reade Streets, NEW YORK

MANUFACTURERS AND IMPORTERS OF

German Hardware, Cutlery, Scissors, Coffin Lace, Sheep Shears

Ball Braces, Bright Halter and Coil Chains, &c.

Also, Birmingham and Sheffield Hardware and Chains, Butcher's Files, Edge Tools & Razors, Wostenholm's Razors & Farriers' Knives, John Wilson's Butcher Knives and Steels, Stub's Tapers, Chesterman's Metallic Tapes, Isaac Greave's Hedge Shears, James Bees & Parkin's Spoke Shaves, Turn Screws and Braces, Pad Locks, Goulcher's Gun Locks, Brades Trowels, &c.

HERMANN BOKER & CO.,

OFFICES AND WAREHOUSES:

NEW YORK, 101 and 103 Duane and 91 and 93 Thomas Streets.
REMSCHEID and SOLINGEN (Prussia.) H. Boker & Co.
SHEFFIELD (England), No. 3 Arundal Lane, Represented by Mr. Arthur Lee.
LIEGE (Belgium), Represented by Mr. Louis Muller.

Manufacturers and Importers of **Cutlery, Guns, Hardware** and **Railroad Material.**
Proprietors of **TRENTON VISE AND TOOL WORKS, Trenton, N. J.**—Vises, Picks, Mattocks, Grub Hoes, Sledges, Hammers, Bridge Work, Turn Tables, etc.
Proprietors of the **MANHATTAN CUTLERY CO.,** "O. K." Razors.
Sole Agents for **LAMSON & GOODNOW MFG. CO., Shelburne Falls, Mass.**—Table Cutlery and Butcher Knives.
W. & S. Butcher's Files, Edge Tools and Razors, the largest stock in the United States.
Geo. Wostenholm & Son's Knives, Scissors and Razors, the largest stock in the U. S.
John Wilson's Butcher and Shoe Knives.
Peter Wright's and Armitage Anvils.

We always have on hand a full assortment of

German and English Hardware, Cutlery, Guns, Gun Material, Chains, Heavy Goods.

JOHN WILSON'S CELEBRATED

BUTCHERS' KNIVES,
BUTCHERS' STEELS,
AND
SHOE KNIVES.

CORPORATE TRADE MARK. FOUR PEPPERCORNS AND A DIAMOND.

THE TRADE MARK, IN ADDITION TO THE NAME, IS STAMPED UPON EVERY ARTICLE MANUFACTURED BY

JOHN WILSON.

Granted A.D. 1766, by the Corporation of Cutlers of Sheffield, and protected by Act of Parliament.

Buyers are specially cautioned against IMITATIONS of the MARK, and the SUBSTITUTION of COUNTERFEITS bearing the NAME, "WILSON," only.

Works:—SYCAMORE STREET, SHEFFIELD. ESTABLISHED in the Year 1750.

BEAM & MURRAY,

IMPORTERS OF

Anvils, Chains, Pocket Cutlery, Guns, Files,

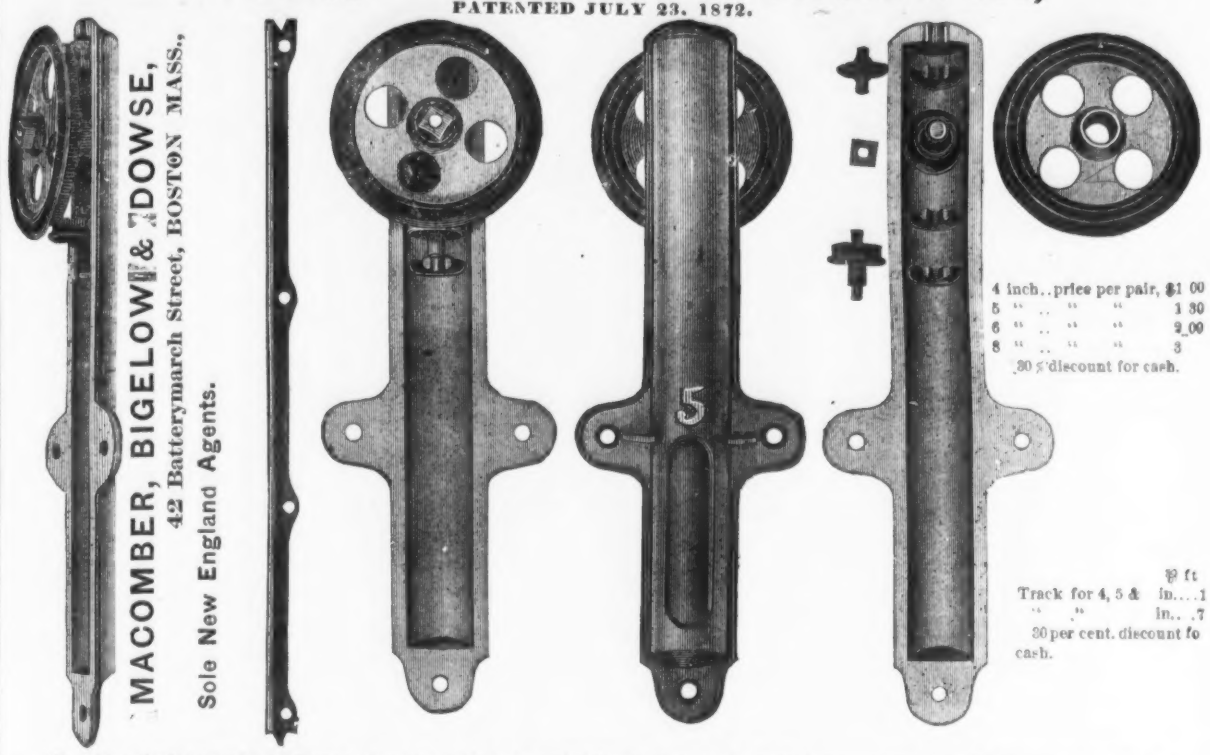
BIRMINGHAM, SHEFFIELD & GERMAN HARDWARE,

Wostenholm's IXL Pocket Knives & Razors, Butcher's Files, Tools, &c.

No. 54 Cliff Street. NEW YORK.

PATENT NOVELTY HANGER,

PATENTED JULY 23, 1872.



4 inch..price per pair, $1 00
5 " .. " " 1 30
6 " .. " " 2 00
8 " .. " " 3
30 p'r cent. discount for cash.

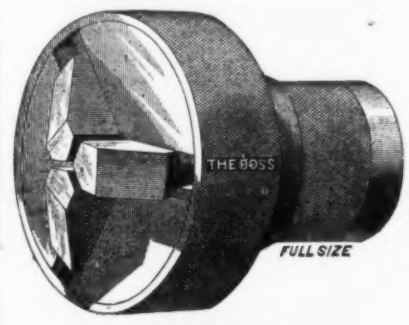
Track for 4, 5 & 6 in.... ₱ ft 1
" " 8 in.. .7
30 per cent. discount fo cash.

We, without hesitation, offer this Hanger as the best article in the market for the purpose. Its many advantages over all other Hangers are as follows:

1st.—It is more than **double as strong** as any other Hanger, owing to its semi-cylindrical or curved back.
2nd.—It is provided with a friction wheel at the top of the Case, which bears against the rear or outside of the sheaves, and prevents it from **leaning outward** and causing it to **RUN TRUE,** a feature not attained in any other Hanger.
3d.—By thus causing the sheave to run true, the doors are always held up **Close to the Frame,** and maintain a close joint around it.
4th.—The sheave has but one flange, there being a lower friction wheel provided with a flange which extends out under the face of the sheave and bears against the outer side of the track, which takes the place of the extra flange in the sheave, thus doing away with the **grooved sheave** which always grinds or breaks
5th.—**IT CAN NEVER RUN OFF THE TRACK.**
6th.—It is the **easiest running** Hanger made, our 5 in. answering the same as 6 in. of the checkback and ordinary makes.
7th.—It is the Most Complete Hanger, in its construction, being tasty, as well as durable.

LOUDERBACK, GILBERT & CO., 53 Chambers Street, New York City.

Also Agents for the CONNECTICUT CUTLERY CO., of Naugatuck, Conn., and keep on hand a complete assortment of their goods



Patented Dec. 24th, 1872.

The BOSS Drill Chuck

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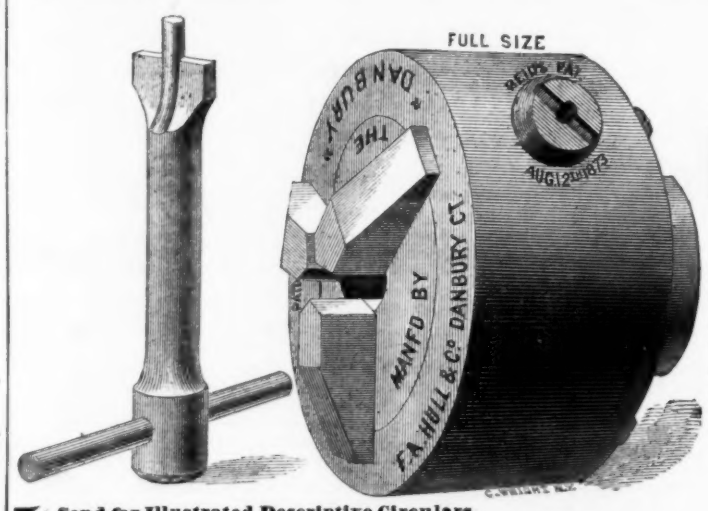

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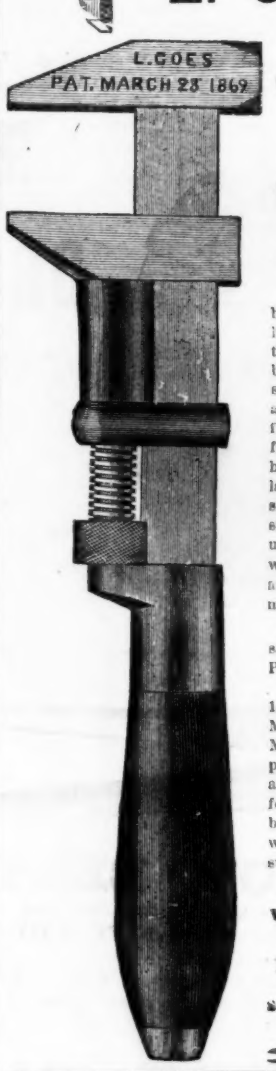

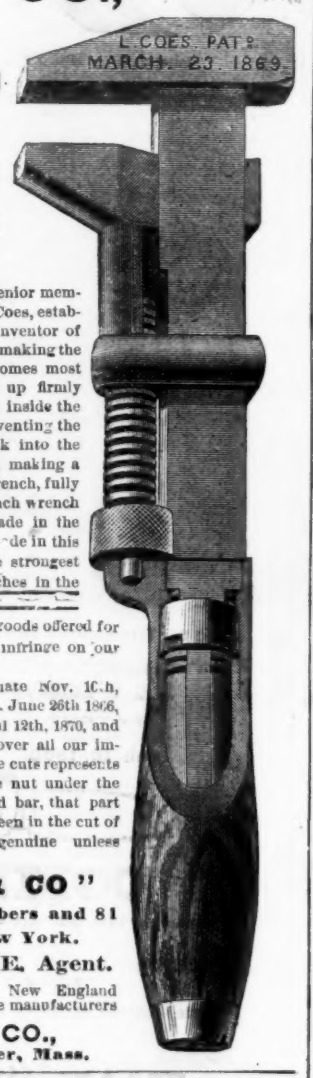

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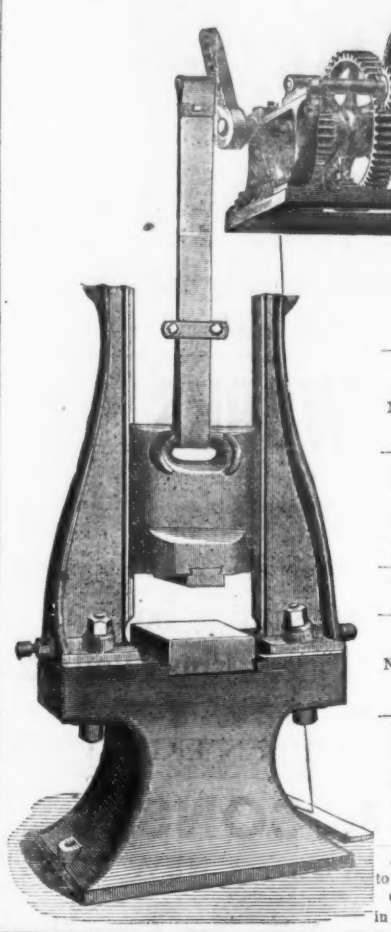

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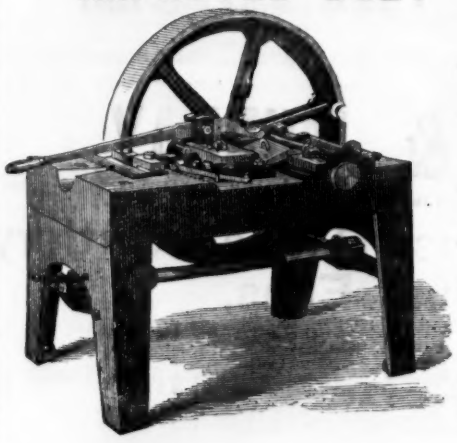

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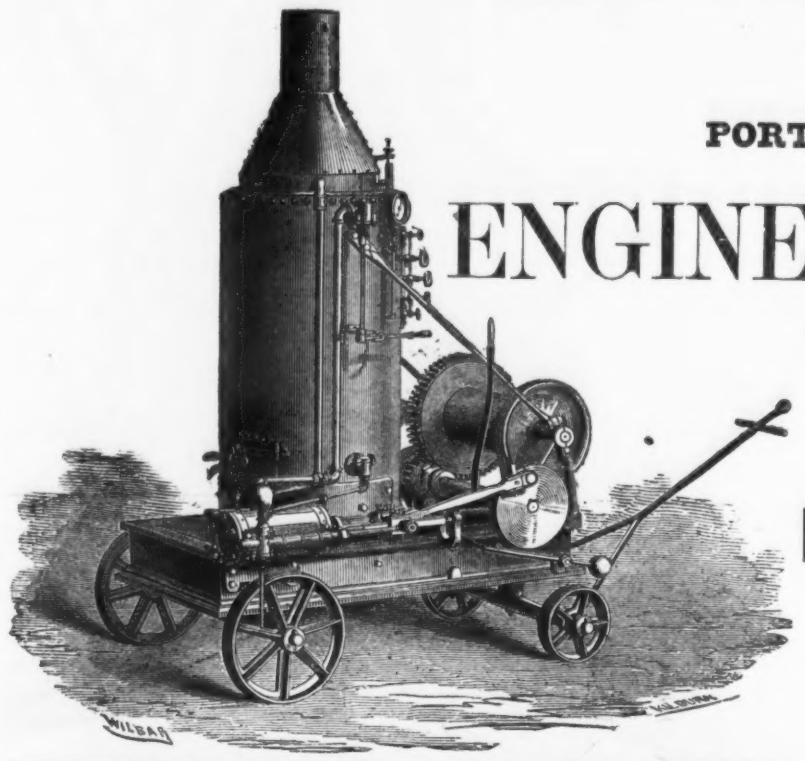

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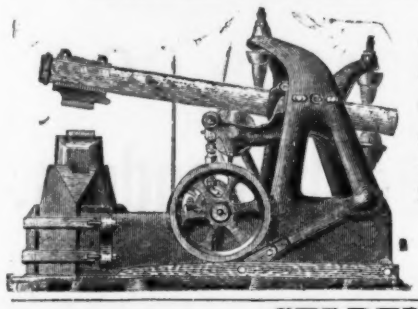

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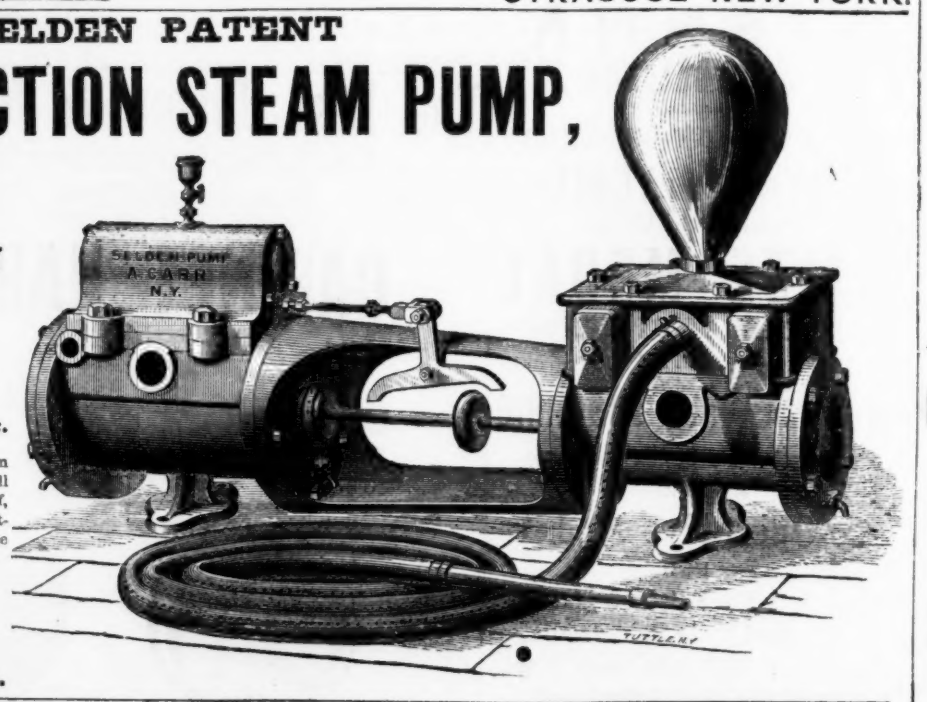

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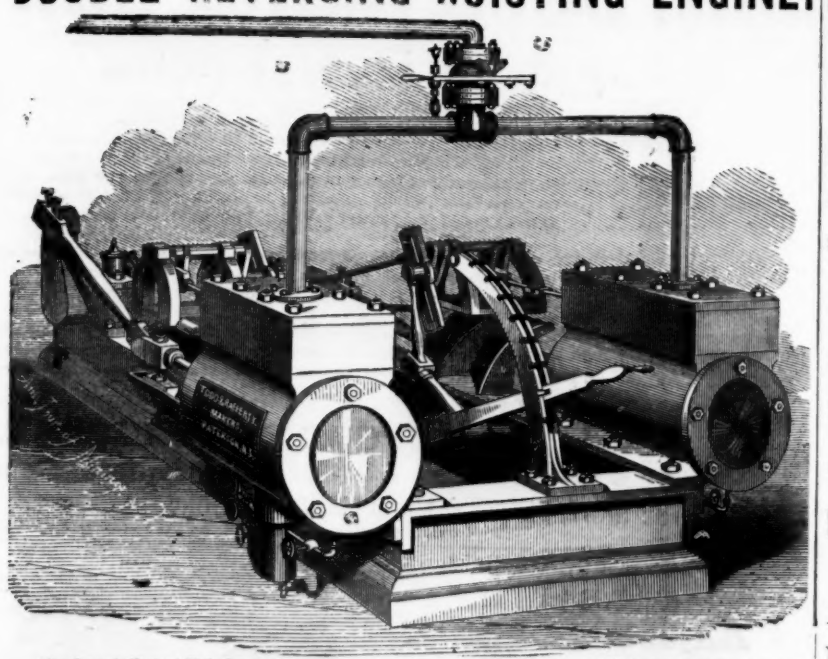

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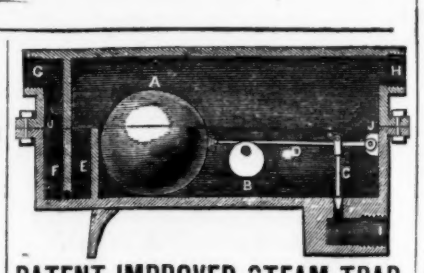

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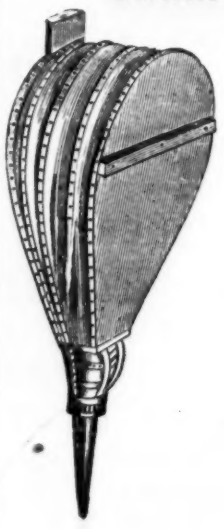

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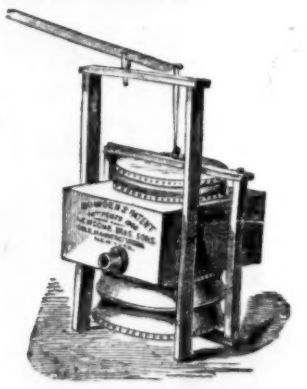

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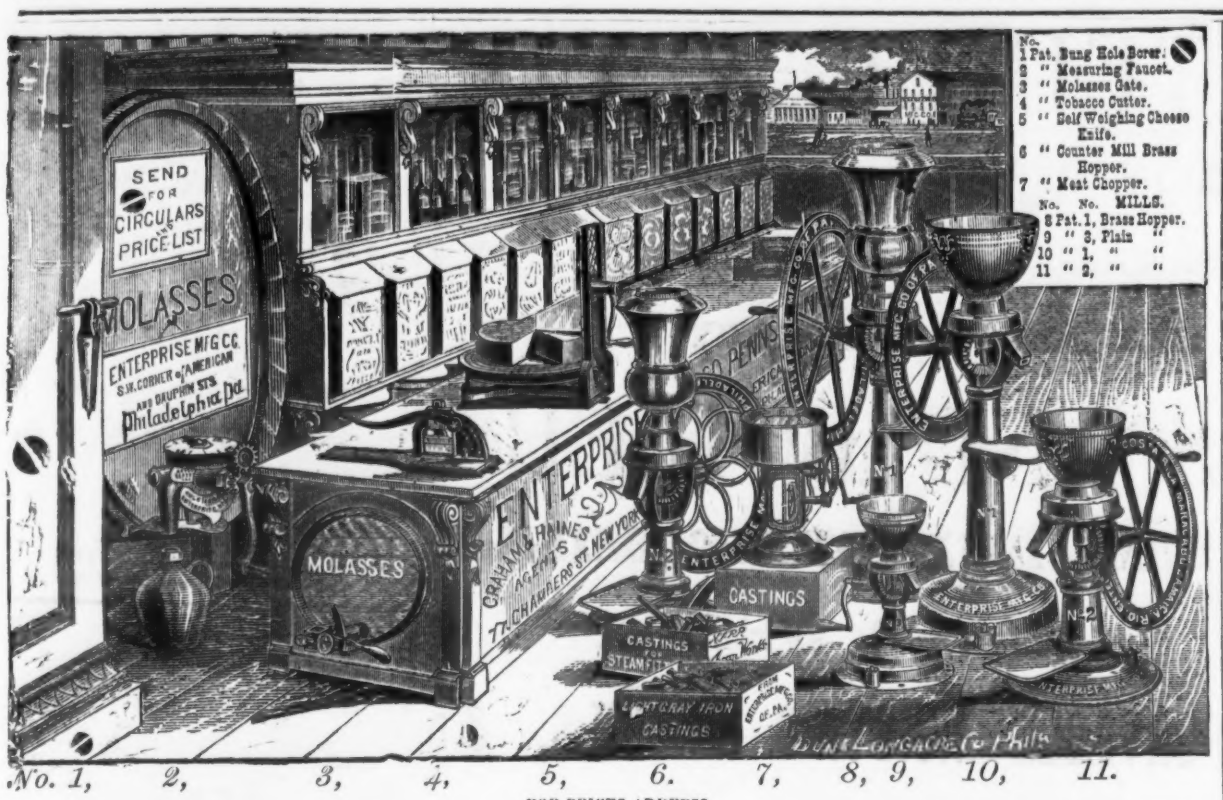

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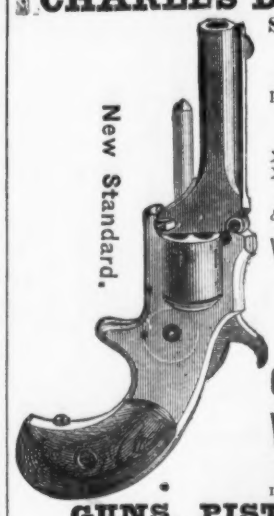

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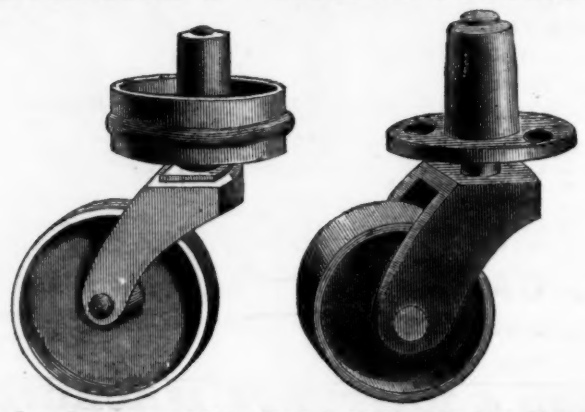


Japanned and Coppered Iron Bed and Plate Casters, Brass Shallow and Deep Socket Casters; also, Bracket Bed and Truck Casters, with Iron, Brass, Porcelain and Wood Wheels.

Send for our New Catalogue and Price List.

SANDUSKY TOOL CO.,

MANUFACTURERS OF

Planes, Plane Irons, Carpenters', Cabinet Makers' and Coopers' Tools,

Bench, Hand and Tail Screws, and Chisel,

File and Auger Handles.

SANDUSKY TOOL CO., Sandusky, Ohio, or GRAHAM & HAINES, 88 Chambers Street, N. Y.

Headquarters for

Henry Disston & Sons' Saws,

Hand, Mill, Circular and Cross Cut.

ALSO,

Plumbs and Levels, Try Squares, Gauges, Trowels and Barker's Reversible Butt.

A full assortment constantly on hand. Address orders to

GRAHAM & HAINES, 88 Chambers Street, N. Y.

Excelsior Manufacturing Company's CLUB SKATES,

GRAHAM & HAINES, Sole Agents,

88 Chambers Street, New York.

These Skates are made of Cast Steel, and very much improved over past season. Our No. 20 and 25 are now superior to anything in the market, and the low price at which we offer them make them very desirable for both retailer and jobber.

Per Pair	$3 25	$3 50	$4 00	$5 00	Discount 35 per cent.
Number	50	40	25	20	

Philadelphia Tool Co.,

MANUFACTURERS OF

Davis' Patent Duplex Wrench,

A tool well made of **Best Materials**, combining all the good qualities of a regular Nut Wrench of equal size with that of at least six pairs of Pipe Tongs. For circulars and price lists, address,

PHILADELPHIA TOOL Co., Office & Works, S. W. cor. 13th & Buttonwood Streets, Phila.,

Or *GRAHAM & HAINES, Agents, 88 Chambers Street N. Y.*

AMERICAN BUTT CO.,

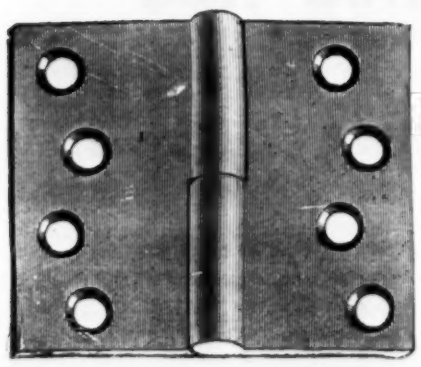
PROVIDENCE, R. I., Manufacturers of

Cast Butt Hinges,

AND

BUILDERS'

HARDWARE.



New York Warehouse with

Messrs. GRAHAM & HAINES,

No. 88 Chambers Street.

Send for Price List.

AGENCY

SMITH & WESSON

Revolvers,

WESSON RIFLES,

DEXTER

BREECH LOADING SINGLE GUN.

79 Chambers St., N. Y.

M. W. ROBINSON, Sole Agent.

VIENNA

PREMIUMS.

THE WILSON SHUTTLE

SEWING MACHINES

Received the Grand

PRIZE MEDAL

AND MEDAL OF HONOR

FOR THE

Best Sewing Machine

The Best made Sewing Machines,

And Three

Co-Operative Medals

FOR

The Best Made Set of Harness,
The Best Made Side Saddle,
The Best Boot and Shoe Work,
And the Best Samples of Cloth Sewing.

No other Sewing Machines received Premiums on their merits, which we will prove by evidence at our office, and that all reports relating to the contrary are fal-

AGENTS WANTED,

WILSON SEWING MACHINE CO.,

707 Broadway, New York,

And all other cities in the United States.

OILERS! OILERS!

J. H. WHITE, Newark, N. J.,

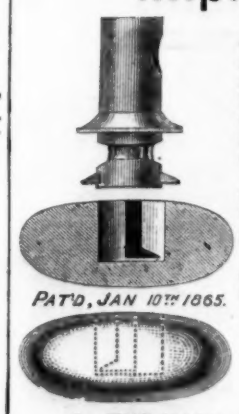
MANUFACTURER OF

Olmsted Patent and Common Oilers,

of all descriptions,

Colwell Patent Door Spring Children's Carriage Trimmings, Spun and Stamped Brass for all Trades, Dies and Tools &c., &c.

Improved Door Knobs.



On the 10th January, 1865, we obtained Letters Patent for improved method of securing necks to Mineral and Porcelain Door Knobs, which improvement was used by us long enough to prove its utility, but on account of unsettled claim of joint ownership by former partner, its use was discontinued. Having now made a further improvement, for which we have made application for a Patent, we are now making the **BEST SECURED** and **MOST DURABLE** Mineral and Porcelain Door Knobs ever offered in this or other markets.

We solicit orders for these Knobs at our regular prices for old styles, with the understanding that if any can be loosened from or gotten off the necks without breaking the tops, they may be held by the purchaser subject to our order, with expenses added.

See *The Iron Age*, of August 21st,, page 11, for reduced list prices on Locks and Latches; also, for illustrated description of our patent **Telescope Locks and Latches,** with patent Flat **Steel Perforated Keys,**

Address

BRANFORD LOCK WORKS,

Branford, Conn.

Or THE HART, BLIVEN & MEAD MANUFACTURING CO., Agents,

18 & 20 Cliff and 243 & 245 Pearl Streets, New York.

☞ Over 60,000 Sold.

BAILEY'S PATENT

Adjustable Planes.

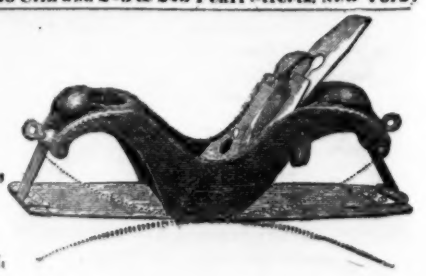
Manufactured by the

Stanley Rule & Level Co.,

NEW BRITAIN, CONN.

Sold by all Hardware Dealers.

Warehouse, 55 Chambers St., New York.



PHILADELPHIA.

(Corrected weekly by Lloyd, Supplee & Walton).

Terms, 30 days. For 60 or 90 days, interest added at 10 per cent. per annum.

Anvils.—Sold Cast Steel.....℘ ℔ 12½c
Peter Wright's.....℘ ℔, gold, 13c @ 12½c
Wilkinson's.....11½c
Eagle.....℘ ℔ 12 cents, currency—dis 10 @ 15 %
Apple Parers.—Reading Improved.....per doz $8 50
Victor, Improved..... " 8 25
Union, "..... " 8 00
Turn Table, "..... " 8 50
Discount for 25 dozen lots..... " 50c
Axes.—Mann's Light.....Per doz. $13 00 @ 14 00
Hunt's Light..... " 14 00 @ 14 50
Red Indian, all sizes..... " 12 50 @ 12 00
Red Chieftain, all sizes..... " 12 30 @ 13 00
Crown Prince..... " 13 50 @ 13 00
Augers and Auger Bits.—Pierce's Pat. Twist Bits.....dis 25 %
Bates' & Ives' Bits.....dis 30 %
Douglass' Bits.....dis 30 %
Cook's Bits.....dis 30 @ 30&10 %
Bonney's Pat. Hollow Augers.....dis 25 %
Russell Jennings' Bits.....dis 10 %
Bates' & Ives Nut Augers.....dis 30 %
Douglass Nut Augers.....dis 30 %
Watrous' Ship Augers.....dis 10 %
Balances.—Landers Frary & Clark's.....dis 15 %
Chattillon's.....dis 15 %
Morton's.....dis 15 %
Common Spring, with Hook.....℘ doz $1 38 @ 2 00
Bells.—Bevin Bros. Mfg. Co. Hand Bells.....dis 50&10 %
" Extra Light Hand Bells.....dis 60 %
Other makers light.....dis 55 @ 60 %
Connell's Door Bells.....old list net
Western and Kentucky.....dis 50 %
Boring Machines.—Bates' Mfg. Co., complete with augers.....dis 10 @ 15 %
Douglas' Mfg. Co., complete with augers.....dis 10 @ 15 %
Common Augers.....$4 25 @ 4 00
Angular, Extra Auger.....5 50 @ 5 00
Bolts.—Eastern Carriage Bolts.....dis 70 %
Western " ".....dis 70 %
Philadelphia " ".....dis 50 %
Wrought Shutter Bolts.....dis 45 %
Cast " ".....dis 35 %
Braces.—Barber's.....dis 40 %
Bartholomew's.....dis 10 @ 15 %
Spoffard.....dis 37½ %
Butts.—Cast Fast Joint, Narrow.....dis 40 %
" " Broad.....dis 40 %
Cast Loose Joint.....dis 50 %
" Acorn Drilled.....dis 40 @ 40&5 %
Wrought Loose Pin.....dis 30&5 %
" Table Hinges and Back Flaps.....dis 30 %
" Narrow.....dis 30&5 %
" Loose Joint.....dis 35&5 %
Parker's Blind Butts..... }
Shepard's " "..... } dis 40 %; by the
Clark's " "..... } case, dis 40&10 %
Garretson's ".....dis 45 %: by the case. dis 50 %
Lull & Porter's ".....dis 25&10 %
Chains.—German Halter.....gold list dis 20 @ 25 %
" Coil.....gold list dis 20 @ 25 %
Galvanized Pump.....℘ ℔ 15c
Best Proof Coil Chain—

℘ ℔.....	13¼	10¾	10	9½	9¼	9	8¾c gold
	3-16	¼	5-16	⅜	7-16	½	⅝ in.

By the cask, 500 lbs., discount ½c per lb. Common Chain, ½c per lb. less than proof.
Chisels.—Socket Framing.....dis 60 @ 60&5 %
Socket Firmer.....dis 60 @ 60&5 %
Tang ".....dis 40 @ 40&5 %
Beaty's Framing and Firmer.....dis 10 @ 10&5 %
Casters.—Porcelain Wheel.....dis 20&10 %
Iron.....dis 20&10 %
Brass.....dis 20&10 %
Clothes Wringers.—Universal.....per doz $72 00
Novelty..... " 72 00
Reliance..... " 72 00
Providence..... " 72 00
Orders for 5 dozen, discount $3 per dozen.
King Wringers (Iron Frame).....per doz $68 00
Coffee Mills.—Common Box and Side.....dis 10 @ 15 %
Patent Box and Side.....dis 10 @ 15 %
Cutlery.—American Pocket (best).....dis 20 @ 25 %
Landers, Frary & Clark, J. Russell & Co. and Lamson & Goodnow Mfg. Co. Manufacturers' net prices.
Drawing Knives.—Hart Mfg. Co.'s.....dis 60 @ 60&5 %
Concave Adjustable Handle.....dis 10 %
Beaty.....dis 10 %
Files.—Nicholson Mill Files.....new list, $5 00 to £ cur
Nicholson Bastard..... " 5 00 to £ cur
" Taper..... " 5 00 to £ cur
Butcher's Mill.....$5 75 to £ gold
" Bastard.....5 50 to £ gold
" Taper.....5 50 to £ gold
Moss & Gamble—Mill, Taper and Bastard.....5 50 @ 5 25 to £ gold
Fluting Machines.
Royal, No. 1, 4½ inch Rollers.....list $6 00
" No. 2, 6 " ".....list 7 00
Hammers and Hatchets.
Yerkes & Plumb's.....dis 10 %
Hammond & Son's.....dis 5 %
Beatty's.....dis 10 %
Hinges.—Strap and T.....dis 30&7½ @ 30&10 %
Bonney's No. 1 Gate.....dis 25 %
" No. 2 and 3.....dis 35 %

Horse Nails.	Nos. 5	6	7	8	9	10
Ausable.....		27	25	24	23	22
Globe.....		29	26	25	24	23
Brandage.....		26	24	23	22	21
Putnam.....	32	28	26	25	24	23

On Ausable, Globe and Brandage 1000 ℔ lots.....dis 5 %
Knobs.—Door (regular manufacture).....dis 40 %
Porcelain and Mineral.....dis 40 %
Locks and Latches.—Rim and Mortise.....dis 40 %
Till and Cupboard.....dis 25 %
American Padlocks.....dis 40 %
Trunk Locks.....dis 5 @ 10 %
Thumb and Roggens Latches.....net @ dis 10 %
Mattocks.—Long and Short Cutter.....dis 15 %
Western Pattern.....dis 15 %
Pennsylvania Pattern.....dis 15 %
Molasses Gates.
Enterprise Mfg. Co.'s Measuring Faucets.....dis 20 %
Stebbins' Gates.....dis 60 @ 60&10 %
Lincoln's ".....dis 40 @ 40&10 %
Landers, Frary & Clark's Petroleum.....dis 10 @ 10&10 %
Taylor's Petroleum Faucets.....dis 20 @ 20&10 %
Rakes.—Cast Steel Garden.....dis 30 %
Malleable Garden.....dis 33⅓ %
Wood Head Iron Teeth.....dis 30 @ 40 %
Rules.—Stanley Rule and Level Co.....dis 60 @ 60&10 %
Steven's and Hubbard's.....dis 60 @ 60&10 %
Squares.—Steel and Iron, new list.....dis 50 %
Saws.—Disston's Cross Cut.....dis 12½ %
Disston's Hand.....dis 12½ %
W. McNiece's H'd. Cross-Cut & Circ'r, new list.dis 15 %
Boynton's Lightning, new list.....dis 30 %
Shovels and Spades.
Rowland's Plain Back, list Feb. 1873.....dis 20&10 %
" Back Strap ".....dis 20&10 %
Oliver Ames & Sons.....new list dis 10 %
Brady Shovel Co.....dis 7½ %
Sad Irons.—Reading (planed face).....per lb. 4¾c.
Coquanock (polished face)..... " 4¾c.
Stove Polish.—Gem.....℘ gross, $5·00
Onyx..... " $5·00
Scythes.—Golden Clipper.....℘ doz. $11·50
Clipper No. 10..... " 10·50
Common Scythes.....℘ doz $7·00 @ 10·00
Screws.—Iron.....new list, April 1st, 1873, dis 47½ %
Brass.....dis 50&10 %
Spoons.—
Plated Spoons, Rogers Bros.'...new list dis 30 @ 30&5 %
Britannia Spoons.....dis 40 @ 40&5 %
German Silver.....new list dis 10 @ 15 %
" Light.....new list dis 15&5 %
Try Squares.—Winterbottom.....dis 10 @ 15 %
Stanley Rule and Level Co.....dis 40&10 %
Willis Thrall, No. 2.....dis 30&10 %
Disston's No. 2.....dis 40 %
Tacks, &c.—Half Weight Tacks.....dis 67½ %
" " by the case.....dis 67&7½ %
Clout and Finishing Nails.....7½ %
" " " by the case.....dis 7½ %
Traps.—Genuine Oneida—Newhouse list.....dis 20 %
Imitation " " ".....dis 20&10 %
Wrenches.—Coes Genuine.....dis 30&10 %
Coes Imitation Wrought Bar.....dis 45 @ 45&5 %
" " Malleable Bar.....dis 50 @ 50&5 %
" " (Kellogg) Malleable Bar.....dis 55 @ 60 %
Tafts Pattern.....60&10 %
" " Kelloggs.....dis 60&10 %
Wire.—No. 0 to 18.....dis 30 @ 32½ %
No. 19 to 26.....dis 40 %
No. 27 to 36.....dis 33⅓ @ 35 %
Coppered 0 to 12.....dis 10 @ 20 %
Tinned Broom Wire.....dis 15 @ 20 %

BUFFALO.

Reported by Messrs. Sidney Shepard & Co.
Oct. 11, 1873.

Axes, Chopping—"Francis Axe Co".....$13 00 @ $14 50
Augers—C. S. Cut.....dis 30&10 %
Bits, Auger—Pierce's.....dis 25 %
Jennings'.....dis 10 %
Bells, Cow—Yaw's Genuine.....dis 20 %
Bellows—Smiths'.....dis 20 %
Bolts—Carriage and Tire.....dis 70&10 %
Braces, Bit—Barber's.....dis 40 %
Spofford's Patent.....dis 40 %
Brads, Cut.....dis 50&7½ %
Boards—Stove, Brooks' Patent.....dis 30 %
Butts—Brass.....dis 20 %
Cast Loose Joint.....dis 50 %
" " Pin.....dis 45 %
" " " Japanned.....dis 45 %
" " " Silver Tipped.....dis 25 %
Wrought Narrow.....dis 30 %
" Broad, Loose Joint.....dis 35 %
" Table and Back Flaps.....dis 25 %
Wrought Butts, Loose Pin.....dis 35 %
Belting—Rubber.....dis 30 @ 33⅓ %
Leather, new list.....dis 80 @ 80&5 %
Beaters, Egg, "Peerless".....per doz $1·50
Brick—Bath (box of 2 doz) Best English.....$1·50
"Rutherford".....$1·25
Bung Borers—"Enterprise".....dis 30 %
Chalk—White, Carpenter's.....℘ gross, 60c
Red, Carpenter's..... " 80c
Blue, "..... " 90c
Crayon School..... " 14c
Chisels—Firmer Socket.....dis 60&10 %
Framing Socket.....dis 60&10 %
Corner Socket Chisels.....dis 60&10 %
Slick's Carpenters'.....dis 60&10 %
Castings—Malleable.....℘ ℔ 10½c
Cherry Seeders.....per doz $12 00

Elbows—Corrugated.....	5	5½	6	7	
Charcoal.....	$4·25	5·25	5·25	6·50	dis 15 %
Russia.....	10·00	13·00	13·00	14·00	

Files—Wheeler, Madden & Clemson's.....dis 45 %
Freezers, Ice Cream—"Champion".....dis 33⅓ %
Gates—Molasses—
Patent Self-Measuring.....℘ doz., $42 00; dis 20 %
Hinges—Window Blind—
Clark's No. 20.....dis 50&5 %
Shepard's Standard, and Clark's.....dis 40&10 %
Garretson's.....dis 40, 10&10 %
Wrought Strap and T.....dis 30&7½ %
Hods, Coal—Plain, Black and Galvanized.....net @ 10 %
Funnel, Black and Galvanized.....net @ 10 %
Fancy and Helmet.....net @ 10 %
Palace Coal Vases.....net
Hammers—Maydole's.....net
Yerkes & Plumb's.....dis 5 @ 10 %
Hooks and Staples—Wrought.....dis ...
Hooks—Belt.....dis 50 %
Hasps and Staples—Wrought.....dis 60 %
Sad Irons.....℘ ℔ 5c
Kettles—Brass.....℘ ℔, 50c
Enameled.....new list dis 40 %
Knives, Drawing—Oval No. 1.....dis 60&10 %
Razor Blade.....dis 50&10 %

Lanterns "Peerless,".....No.	1	5	10	
℘ doz	$26 00	$11 25	$13 75	dis 10 %
"Radiant".....No	75	100	150	175
℘ doz	$18 13	$13 13	$22 50	$22 50 dis 20 %

Tubular.....$13 00
" with Guards.....13 50
Machines—Apple Paring, "Reading".....$8·50 ℘ doz
Mills, Coffee—Box and Slide, common.....dis 15 %
Box Union and Eagle.....dis 15 %
"Enterprise".....dis 20 %
Nails—Cut, Chesapeake.....$4 50
Clout and Finishing.....dis 7½ %
Shoe.....dis 7½ %

Horse, Ausable.....No.	5	6	7	8	9	10
	30	27	25	24	23	22c

" " Finished & Pointed.....add 1c ℘ ℔
" " 1000 lbs.....dis 5 %

" Clinton.....No.	6	7	8	9	10
	22	20	19	18	17c

Packing—Rubber.....dis 30 @ 33⅓ %
Pencils, Slate—Soapstone.....4 5 6 in.
30 40 50c. ℘ 100
Case lots.....dis 20 %
Paint—White Lead, U. S. Gov't.....℘ ℔ 9 c
Rivets—Iron. Black and Tinned.....dis 20 @ 25 %
Copper.....dis 10 %
Rope—Manila, ½ inch and larger.....℘ ℔ 17½c
Rules—Boxwood and Ivory, Stephens.....dis 50&10 %
Screws—"American Screw Co"—
Flat Head, Iron.....dis 47½ %
Flat Head, Brass.....dis 60 %
Staples—Blind, Boardman's Pat., ½ & ⅝.....℘ ℔ 37½c
Skates—White's.....dis 30
Barney & Berry's—N. Y. Club Japanned Top.....$2 20
" " B. & B. Club Blued Top.....2 85
B. & B. all Clamp, Nickel Plat. Fastening.....4 25
" " B. & B. Rink.....10 50
Straps, Skate—Russet and Black.....net @ 20
Spoons, Iron Tinned.....dis 10 %
" by the case.....dis 20 %
Plated Rogers' A No. 1.....dis 30&5 %
Britannia.....dis 40 %
Squares—Steel and Iron.....new list 50 %
Shoes, Horse—H. Burden & Sons.....℘ keg $6·50
Shovels & Spades—Shepard, Forsyth & Dennison..dis 20 %
Saws—Henry Disston & Sons.....dis 10 %
Scales—Buffalo Scale Works.....dis 25 %
Fairbanks.....dis 15 %
Shears—Seymour's.....dis 50@10 %
Traps, Steel—Newhouse.....dis 20 %
Tacks—Half Weight Am. Iron.....dis 67½&7½ %
Vises—Parallel, Buffalo.....dis 15 %
Wrenches—Coes' genuine.....dis 30&10 %
Coes' Imitation.....dis 50&10 %
Tafts' Pattern.....dis 65&10 %
Ware—French, Tinned and Iron.....
Stamped and Japanned.....
Cast Iron Hollow.....dis 25 %
Tin Plates.—Add for each X.....2·50

10x14, IC. Charcoal	$1·00	14x20 C. terne	$1·25
12x12, "	12·50	20x28 C. "	24·50
12½x17, "	11·50	20x28 X. "	29·00
14x20, "	15·00		

Pig Tin—Straits.....38c @ 39
Banca.....44c @ 45
Bar Tin.....40c
Solder.....No. 1, 21 c; No. 2, 19 c
Sheet Zinc—

"Lasalle".....	570	300	200	100 ℔ casks
	11·00	$11·20	$11·20	$11·30 ℘ 100 ℔s

Iron Wire—Bright and Annealed.....dis 30 %
Coppered.....dis 25 %
Tinned.....dis 15 %
Tinned Broom, { Nos. 20 21 22 / 20c 21c 21c } ...dis 20 %
Copper—Sheathing 14 @ 18 oz.....℘ ℔ 37c
Planished.....℘ ℔ 44 @ 46c
Bottoms.....℘ ℔ 39c
Bolts.....℘ ℔ 40c
Braziers' Sheets.....℘ ℔ 40c
Sheet Iron.—
18 Common.....$5 80
24 Common.....6 00
24 W. D. Wood & Co., Smooth Finish.....7 25
Am. Russia.....A. 14c B. 12c
Gen. Russia, No. 1 stained.....21c
" " clean.....22c
Galvanized.....dis 25 %

PITTSBURGH.

Card Rates, 60 days.

Flat Bar.—
1½ to 4 x ⅜ to 1 inch..3·3c
4¼ to 6 x ⅜ to 1 inch..3·5c
1¼ to 6 x 1⅛ to 1¼ in..3·7c
1¼ & 1⅜ x ⅜ to ¾ in.....3·5c
1 & 1⅛ x ⅜ to ¾ in.....3·6c
⅝, ¾ & ⅞ x ⅜ to ⅝ in..3·7c
Horse Shoes.—
All sizes.....4·8c
Nail rods.....7·2c
Heavy Bands.—
3½ to 6 x ¼ & 5-16 in..3·8c
1½ to 3¼ x ¼ & 5-16 in..4·0c
¾ to 1⅜ x ¼ & 5-16 in....4·3c
½ to ⅝ x ¼ & 5-16 in....4·5c
Light Bands.—
3 to 6 x 3-16 to No. 12..4·3c
1½ to 2¾ x 3-16 to No. 12.....4·5c
1 to 1⅜ x 3-16 to No. 12..5·9c
½ to ⅞ x 3-16 to No. 12..5·5c
Hoops.—2¼ to 3 in.....4·6c
3½ to 4½ in.....4·8c
1½ to 2 in.....4·8c
1⅜ to 1 11-16 in.....5·1c
1⅛ & 1¼ in.....5·4c
1 in.....5·8c
⅞ in.....6·3c
¾ in.....6·8c
⅝ in.....7·3c
½ in.....7·8c
Round and Square.—
1 to 1⅞ in.....3·3c
2 to 2¾ in.....3·6c
3 to 3½ in.....3·8c
3¾ to 4 in.....4·8c
⅝ to 9-16 in.....3·7c
½ to 7-16.....4·0c
⅜ in.....4·1c
5-16 in.....4·5c
¼ in.....5·9c
3-16 in.....6·9c
Oval Iron.—
⅝ to 1½ in.....3·9c
⅜ to ½ in.....4·1c
½ in.....4·8c
⅜ in.....4·9c
Half Oval and Half Round.—
⅝ to 1½ in.....4·2c
⅜ to ½ in.....4·7c
½ in.....5·4c
⅜ in.....6·9c

	Boiled.	Charcoal.	Jun.
Sheet Iron, 10 to 14.....	5·3	6·8	8·3
" 15 to 20.....	5·5	7·0	8·5
" 21 to 24.....	5·7	7·2	8·7
" 25 to 26.....	5·9	7·4	8·9
" 27.....	6·1	7·6	9·1

All sheets over 28 in. wide, ½c. ℘ ℔ extra.
Tank Iron—
3-16, ¼ & ⅜ in. thick..5·3c
Boiler Plate Iron.....5·0c
Heads not flanging.....6·2c
Heads flanging.....9·0c
Plow Slabs.....5·9c
Plow Wings.....6·4c
Railroad Iron—Countersunk and Punched.—
1½ x ⅜, 7-16 & ½ in...4·3c
1¼ x ¼ & 5-16 in.....3·3c
1½, 1¾ & 2 x ½ & ⅝ in..3·8c
1½ x ⅜ in.....4·0c
Extras for Cutting to Length.—
Flat bars and rounds and squares.....0·1c
Flat bars for tire.....0·1c
Light bands and wagon box iron.....0·2c
Hoops.....0·3c

The following are the Card rates of Lewis, Oliver & Phillips:
Iron, standard list, assorted sizes, for large orders, 3·3c, card rate, 2 % off net.
Flat Rail (1¼x¼), punched and coun'sunk..4·7c ℘ ℔ net
Iron Wedges.....5c ℘ ℔ net
Norway Nail Rods.....9½c ℘ ℔ net
Crow Bars (in ordering please state whether "Wedge" or "Pinch" point).....6½c ℘ ℔ net
Beetle Rings.....9½c ℘ ℔ net
Fence Pickets—
⅜ round, bent to shape.80c ℘ ft. of fence, less 5 % off net
Discount off Standard List.
Carriage and Tire Bolts (new list).....70&5 % off net
Plow Bolts.....25 % off net
Stove Bolts.....5 % off net
Machine and Square Head Bolts.....30 % off net
Coach and Lag Screws.....30 % off net
Bolt Ends.....25 % off net
Harrow Teeth, in lots of 1 ton or more, packed in casks, 1 in. diam. 4½c ℘ ℔ net; ⅞, ¾ in. diam. 4½c ℘ ℔ net; ⅝ in. diam. 4¾c ℘ ℔ net.
Patent Headed Harrow Teeth, packed in casks, ½c ℘ ℔ ex
Skein Bolts, in bulk, in lots of 1 keg or more, ⅝ in. diam. 7c ℘ ℔ net; 9-16 in. diam. 8c ℘ ℔ net; ½ in. diam. 9c ℘ ℔ net. 1c ℘ ℔ extra when less than 1 keg of each size is ordered.
Screw Hook-and-Eye Hinges, ¾ to 1 in. diam. 9½c ℘ ℔ net; ⅝ in. diam. 10½c ℘ ℔ net; ½ in. diam. 12½c ℘ ℔ net.
Screw and Strap Hinges, in lots of 100 pairs or more, 14 to 36 in. long, 6½c ℘ ℔ net; 8, 10 & 12 in. long, 8c ℘ ℔ net.
Strap and T Hinges..40 % off net, delivered as customary
Screw Hitching Rings.....$5 50 ℘ 100 net
Duck Nest Tuyere Irons.....$15 00 ℘ doz net
Cast Iron Washers.....℘ ℔ 4½c net
Bridge and Roof Bolts—
1 to 2 in. diam. over 8 ft. long.....℘ ℔ 4½c net
1 to 2 in. diam. from 4 to 8 ft. long..... " 5 c net
1 to 2 in. diam. from 1½ to 4 ft. long..... " 5½c net
⅝, ¾ and ⅞ in. diam. over 4 ft. long..... " c net
⅝, ¾ and ⅞ in. diam. from 1½ to 4 ft. long " 6½c net

WAGON HARDWARE.

Wagon Box Strap Bolts—
10 in. long by 7-16 at Screw End, ℘ set of 8 bolts..55c
12 " ½ " " 8 " ..70c
10 " 9-16 " " 8 " } 90c
12 " 9-16 " " 8 " }
14 " 9-16 " " 8 " ..$1 00
10 in. long by ⅝ at Screw End, ℘ set of 8 bolts.. } 1 00
12 " ⅝ " " 8 " }
14 " ⅝ " " 8 " ..1 10
16 " ⅝ " " 8 " ..1 20
5c ℘ set for each additional inch over 14 in. All lengths made.
Wagon Box Rods, narrow track, each.....18c
" " wide track, each.....20c
Single Tree Irons, ℘ set of four pieces.....38c
Wrought Iron Bolster Plates, 2¾ in. wide, ℘ set.....60c
" " 3 " ".....65c
" " 3¼ " ".....70c
" " 3½ " ".....75c
Wagon Brake Ratchets, each.....16½c
" " " finished with guard, each..45 c
Wrought Hammer Straps, heavy pattern, each.....16 c
" " " light " each.....13½c
" Rub Irons, each.....11 c
Stay Chain Hooks, each.....8 c
Double and Single Tree Clips, figure 1, each.....9 c
" " " " 2, each.....10 c
" " " " 3, each.....12 c
Strap Bolts, Rods, Single Tree Irons, Bolster Plates, Brake Ratchets, Hammer Straps, Rub Irons, Stay Chain Hooks and Clips, in lots of 100 sets.....dis 25 %
Wagon Box Staples, 1½ to 2½ in. to clinch. ℘ 1000 $12 50 net
" Box Iron, to rivet on. ℘ 1000 8 50 net
Neck Yoke Eyes, each.....5½c net
" " with ⅜ rings, each.....8 c net
King Bolts, ¾, 1, 1⅛, and 1¼ in. diam.....℘ ℔ 4½c net
Wagon Rivets, ex. large, flat, oval and steeple head, ¼ in. diam. all lengths..... " 9½c net
Wagon Rivets, 3-16 in. diam., all lengths..... " 11½c net
" & Nails, in 5 ℔ paper boxes....℘ ℔ 1c extra
" " in 25 ℔ wood " .... " ½c extra
Wagon and Hinge Nails, ¼ in.....℘ ℔ 17 c net
" 3-16 in..... " 19 c net
Double Tree Plates..... }
Coupling "..... } " 9 c net
Tongue "..... }
Neck Yoke Plates..... " 12 c net
Tongue Cap Iron, 1¾, 2 & 2¼ in. wide, same price ℘ ℔ as Band Iron.
Wagon Chains, Stay Lock and Tongue, 5-16 in, ℘ ℔ 11½c net; ¼ in., 12½c. net

DETROIT.

(Reported by Messrs. Jewett & Root.)

Tin Plate.—Best Charcoal
IC, 10x14.....$11 75
IX, 10x14.....14 50
XX, 10x14.....17 25
IC, 12x12.....12 25
IX, 12x12.....15 00
IC, 14x20.....12 75
IX, 14x20.....15 50
XX, 14x20.....18 25
XXX, 14x20.....21 00
XXXX, 14x20.....25 75
DC, 100 Plate.....11 25
DX, ".....14 00
DXX, ".....16 75
DXXX ".....19 50
DXXXX 100 Plate..22 25
IX, 14x14.....25 00
IC, 10x14 W.....11 25
IX, 10x14 W.....14 00
Roofing Tin.—Best Char.
IC, Terne, 14x20.....$11 25
IX, " 14x20.....14 00
IC, Terne, 20x28.....24 50
IX, " 20x28.....29 00
Coke Tin.—
IC, 10x14 Coke.....$10 00
IX, 10x14, Coke.....12 75
IC, 14x20, ".....11 00
Copper.—
Sheathing.....37½c
Copper Bottoms.....39½c
Planished Copper.—
Sheathing, 14x48.....46c
Boiler Size, No. 7.....48c
" " No. 8.....48c
" " No. 9.....48c
Pig Tin.—
Large Pigs.....38c
Small Pigs.....39c
Bars.....40c
Solder.—No. 1.....21c
No. 2.....19c
Bright Wire...dis 27½ %
Sheet Iron.—
No. 18 Am. Com.....5·8c
No. 24 Am. Com.....6·0c
Pat. Am. Russia "A," Nos. 24, 25 & 26.....14c
Russia No. 9, 10, 11&12. 21½c
W. D. WOOD'S & CO.'S SHEET IRON.—
Nos. 15 to 20 Smooth $7 05
" 21 to 24.....7 25
" 25 & 26.....7 45
" 21 to 24 Char'l..8 75
" 25 & 26 "..8 95
Sheet Zinc.—Any width.....10½c

CINCINNATI.

Reported by Sellew & Co., Importers and Jobbers Metals, No. 214, 216 and 218 Main street.

Tin Plate.—I. C. 10x14 Charcoal.....$15·50 @ $14·50
I. C. 10x14 best Coke.....12·00 @ 13·50
I. C. Terne, 14-20.....12·00 @ 18·00
I. C. " 20-28.....26 00 @ 27·50
I. C. Continuous.....28·00
Pig Tin.—
Banca.....℘ ℔ 47c
Straits.....℔ ℘ 41c
English.....41c
Solder.—
S. & Co.....℘ ℔ 28c
A 1.....℘ ℔ 24
Roofing..... " 28
Lead.—Pig..℘ ℔ 7½c @ 8c.
Bar.....℘ ℔ 8c @ 9c
Copper.—
Ingot.....℘ ℔ 30c @ 31c
Planished... " 51c @ 53c
Sheathing.. " 44c @ 46c
Bolt..... " 40c
Brazier, 6 to ? lb...℘ ℔ 46c
" 10 to 14 lb.. " 42c
" 14 to 100 lb.. " 40c
Copper Bottoms.. " 40c
Zinc.—Cask, 500 to 1000 lbs.....℘ ℔ 11 c
Case, 100 lbs..... " 11½c
Slab..... " 8½c @ 9c
Brass.—
Roll, No. 6 to 30. ℘ ℔ 45c
" 30 to 38. " 65c
Roll, No. 38 to 40...℘ ℔ 50c
Wire, No. 0 to 20...℘ ℔ 50c
" 20 to 25... " 60c
Babbit Metal.—
Sellew & Co.....℘ ℔ 38c
Black Lead.....℘ ℔ 25c
Market.....15c
Antimony.....℘ ℔ 20c
Bismuth.....℘ ℔ $6 00
Nickel.....℘ ℔ $3 00
Sheet Iron.—
Russia.....℘ ℔ 20c @ 22c
Am Russia A..℘ ℔ 14 @ 15c
" " B.. " 13 @ 14c

	Com. B.	Smooth Fin. S. L. U.	Smooth D Re'fd.
15 to 20.....	6·0c	7·5c	9·0c
22 to 24.....	6·2c	7·8c	9·2c
26.....	6·4c	8·0c	9·4c
27.....	6·6c	9·2c	9·6c

Galvanized Iron.—Full bundles.....dis 25 %
Nos. 18 to 20.....15c
22 to 24.....16c
25 to 26.....17c
No. 27.....18c
28.....20c
Bar Steel.—Silver, ℘ ℔ 21c; Crescent, 17½c.
Iron Wire.....dis 25 %
Enameled Ware.....dis 33⅓ %
One Piece Corrugated Elbows.....dis 10 %

Charcoal Iron.		Russia Iron.	
4½ inch.....℘ doz	$3·75	4½ inch.....℘ doz	$8·00
5 "	4·25	5 "	10·00
5½ "	5·25	5½ "	13·00
6 "	5·25	6 "	13·00
7 "	6·50	7 "	14·00

Leader Elbows—Flat Crimp Retinned.—

℘ doz.		℘ doz	
2-inch.....	$2 00	2½-inch.....	$2 25
3-inch.....	2 50	3½-inch.....	3 00
4-inch.....	3 50	4½-inch.....	4 00

Sheet Iron Bread Pans.....℘ ℔ 12c
American Broilers.....℘ doz. $13·50
Tinmen's Machines.....net list
Sad Irons.....℘ ℔, 5½c
Brass Kettles.—Ansonia.....48c

London Metal Market.

(From The Mining Journal.)

	£.	s.	d.	£.	s.	d.
Copper—℘ ton.						
Best Selected.....	95	0	0	96	0	0
Tough Cake & Tile.....	93	0	0	94	0	0
Sheathing and Sheets.....	100	0	0	—		
Bolts.....	103	0	0	105	0	0
Bottoms.....	103	0	0	106	0	0
Old (Exchange).....	85	0	0	—		
Burra Burra.....	93	10	0	94	0	0
Wire.....℘ ℔.	0	1	0¾	—		
Tubes..... "	0	1	0½	0	1	1
Brass—℘ ℔.						
Sheets.....	0	0	10	0	0	11
Wire.....	0	0	10½	—		
Tubes.....	0	0	11¼	0	0	11¾
Yellow Metal Sheathing.....	0	0	9	0	0	9¼
Sheets.....	0	0	8¾	0	0	9
Tin—℘ ton.						
English Blocks.....	125	0	0	126	0	0
Ditto Bars.....	126	0	0	127	0	0
Ditto Refined.....	128	0	0	—		
Banca.....	123	0	0	124	0	0
Straits.....	122	10	0	123	0	0
* **Tin Plates**—† ℘ box.						
IC Charcoal.....1 qual.	1	16	0	1	18	0
IX ".....1 qual.	2	2	0	2	4	0
IC ".....2 qual.	1	14	0	1	16	0
IX ".....2 qual.	2	0	0	2	2	0
IC Coke.....	1	9	6	1	12	0
IX ".....	1	15	6	1	18	0
Canada Plates.....℘ ton.	22	0	0	23	0	0
" at works.....	21	10	0	22	0	0
Spelter—℘ ton.						
Foreign.....	27	0	0	27	10	0
To arrive.....		—			—	
Zinc—℘ ton.						
In Sheets.....	33	0	0	34	0	0
Iron—℘ ton.						
Bars Welsh, in London.....	12	10	0	—		
" to arrive.....	12	5	0	12	7	6
Nail Rods.....	12	15	0	13	0	0
Nail Rods, Staff'd in L'ndon	13	5	0	—		
Bars.....	13	15	0	14	0	0
Hoops.....	14	10	0	15	0	0
Bars at Works.....	13	0	0	15	0	0
Hoops ditto.....	14	0	0	16	0	0
Sheets, single.....	15	10	0	16	0	0
Pig, No. 1, in Wales.....	5	0	0	6	10	0
Refined metal ditto.....	7	0	0	8	0	0
Bars, common ditto.....	11	5	0	11	15	0
Do. merchant, Tyne or Tees	11	10	0	11	15	0
Ditto, Railway, in Wales.....	11	0	0	11	10	0
Ditto, Swedish, in London.	19	15	0	—		
To arrive.....	20	10		21	10	0
Pig, No. 1, in Clyde.....	5	5	0	7	0	0
Ditto, f.o.b., Tyne or Tees..	4	10	0	5	10	0
Ditto, Nos. 3, 4, f.o.b.....		—			—	
Railway Chairs.....	5	5	0	6	0	0
" Spikes.....	13	10	0	14	0	0
Indian Ch'coal Pigs in L'don		—			—	
Steel—℘ ton.						
Swedish, in kegs (rolled)...		—			—	
Ditto (hammered).....	21	0	0	21	10	
Ditto, in faggots.....		—			—	
English, spring.....	25	0	0		—	
Quick-silver—℘ bottle.	17	0	0		—	
Lead—℘ ton.						
English Pig, common.....	24	0	0	—		
Ditto, LB.....	24	0	0	24	5	0
Ditto, WB.....	25	0	0	—		
Ditto, Sheet.....	24	5	0	—		
Ditto, Red Lead.....	25	0	0	—		
Ditto, White.....	30	0	0	32	0	0
Ditto, Patent Shot.....	27	5	0	—		
Spanish.....	23	10	0	—		

* At the works, 1s. to 1s. 6d. per box less. Terne Plates 2s. per box below Tin Plates of similar brands. Add 6s. for each X.

Steel.

THREE 1st CLASS PRIZE MEDALS. CLASSES 1, 21, 22, Great Exhibition of Industry, LONDON, 1851.

MEDAL OF HONOUR, SOCIETY OF ARTS & INDUSTRY, LONDON, 1856.

1st CLASS PRIZE MEDAL, CLASS 1st UNIVERSAL EXHIBITION OF INDUSTRY PARIS, 1855.

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SUCCESSORS TO

SAML COCKER & SON,

(Established 1752.)

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MANUFACTURERS OF

CAST, [illegible], SHEET, AND BLISTER STEEL, OF EVERY DESCRIPTION.
BEST CAST STEEL WIRE, ADAPTED SPECIALLY FOR MECHANICAL PURPOSES;
Also for ROPES, NEEDLES, FISH HOOKS, PINS, CRINOLINE, &c.

BEST CAST STEEL FILES, SAWS, EDGE TOOLS, HACKLES, GILLS, CARD CLOTHING, CARD TEETH, HACKLE AND GILL PINS, FISH HOOKS, NEEDLES. &c.

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AND IMPORTERS OF IRON

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PHILADELPHIA, Jas. C. Hand & Co.....PROVIDENCE, Nightingale & Kilton.
CHICAGO, Crerar, Adams & Co.....NEW ORLEANS, Folger & Co.
CINCINNATI, Augustus Wessel.....SAN FRANCISCO, Huntington, Hopkins & Co.

F. W. MOSS,

Successor to JOSHUA MOSS & GAMBLE BROTHERS,

MANUFACTURER AND IMPORTER OF

STEEL AND FILES.

Principal Depots: 80 John Street, New York, and 512 Commerce Street, Philadelphia.

MOSS & GAMBLE **SUPERIOR C. S. "FULL WEIGHT" FILES,**

Cast Steel Hammers and Sledges. Also, "M. & G." Anvils and Vises.

WARRANTED CAST STEEL, especially adapted for DIES and TURNING TOOLS, DRILLS, COLD CHISELS, PUNCHES and all kinds of MACHINISTS' TOOLS.
Celebrated Improved Mild Centre Cast Steel, for Taps, Reamers, and Milling Tools, warranted not to crack in hardening Taps of any size.
Swede Spring Steel, especially adapted to Locomotive and Railway Car Springs.
English Spring and Plow Plate Steel.
Also, manufacturer of
Sheet Cast Steel, Shear, German, Round Machinery, Hammer, Fork and Shovel Steel

And GENERAL MERCHANT.

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AND GENERAL MERCHANTS,

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Boston, 21 Oliver Street.

BARROW HÆMATITE STEEL COMPANY,

LIMITED.

BARROW IN FURNESS,

LANCASHIRE, ENGLAND.

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TRADE MARK

Steel Rails, Tyres, Wheels,

Axles, Shafting, Boiler & Ship Plates, Bessemer Pig Iron, etc., etc.

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Sole Agents for the United States,
104 & 106 John Street, opposite Cliff Street, NEW YORK.

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MANUFACTURERS OF SUPERIOR

STEEL

For Tools, Cutlery, Saws, Files, Augers, Gimblets, &c.; Sheet Cast Steel for SPRINGS AND STAMPING COLD;

ALSO THE CELEBRATED

DOG BRAND FILES,

Unsurpassed, if equaled in quality.

Bailey Lane Works, Sheffield, England.
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established 1810.

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SANDERSON BROTHERS & COMPANY,

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MANUFACTURERS OF THE

CELEBRATED CAST STEEL,

WARRANTED MOST SUPERIOR FOR TOOLS.

DARNALL WORKS, ATTERCLIFFE FORGE, WEST STREET WORKS, } SHEFFIELD, ENGLAND.

IMPORTERS OF FILES,

AND

AGENTS FOR ARMITAGE'S GENUINE MOUSEHOLE ANVILS.

NEW YORK, Edward Frith, 16 Cliff. | NEW ORLEANS, Rich'd Rhodes, 71 Camp.
BOSTON, H. L. Richards, 18 Batterymarch. | BALTIMORE, Md., Wm. H. Cole.
PHILADELPHIA, Wm. H. Sowers. | MONTREAL, Saint Paul St.
CLEVELAND, O., Cleveland, Brown & Co. | NEW HAVEN, Ct., Atwater, Wheeler & Co.

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97 John Street, NEW YORK,

Sole Manufact'rs of **"CHOICE"** Extra Cast Steel.

Manufacturers of all Descriptions of Steel.

Manufacturers of Every Kind of Steel Wire.

Don Works, Sheffield, England.

JOHN HOGAN, Agent.

S. & C. WARDLOW,

MANUFACTURERS OF THE CELEBRATED

Cast and Double Shear STEEL,

In Bars, Sheets and Coils, for fine Pen and Pocket Cutlery, Table, Carving, Butcher and Shoe Knives, Turning Tools, Dies, Files, Clock or other Springs, Saws and Tools of every variety.

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In calling the attention of consumers of Steel in any of the varieties above enumerated, we would respectfully assure them of our ability to supply an article, that cannot be excelled in quality, temper, and adaptation in all respects to the various purposes for which it may be required. Half a century of practical experience in all departments of Steel manufacture, a long established reputation in England, and the Continent of Europe, and in the Eastern States principally of this Country, encourage us to solicit a universal trial of our Steel for the above or other purposes for which a first class Material in quality, temper, and durability is needed.

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Bailey Street and Broad Lane Steel Works, } SHEFFIELD, ENGLAND.

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ALSO STEEL of superior quality for Turning Tools, Taps, Dies, Drills, &c.

Hot and Cold Rolled Sheets for Clock Springs, Corset Clasps, Pens, &c.

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Railroad Iron, Pig Iron, Merchant and Ship Iron,

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JERSEY CITY, NEW JERSEY.

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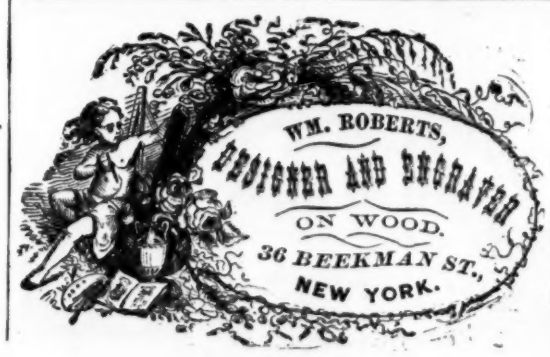

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CAST STEEL,

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All descriptions of **Cast and German**

Spring and Plow Steel,

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TIRE, TOE CORK, SLEIGH SHOE. BLISTER & PLOW STEEL.

Also, Plow and other Iron.

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Also, SPORTING, MINING, SHIPPING, AND BLASTING POWDER

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LAFLIN & RAND POWDER CO.,

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invite the attention of the the Hardware Trade to their facilities for delivering

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IN EVERY PART OF THE UNITED STATES, from having agencies and magazines at all prominent points, beside our works at

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The superiority is well known of our brands Rifle Powder:

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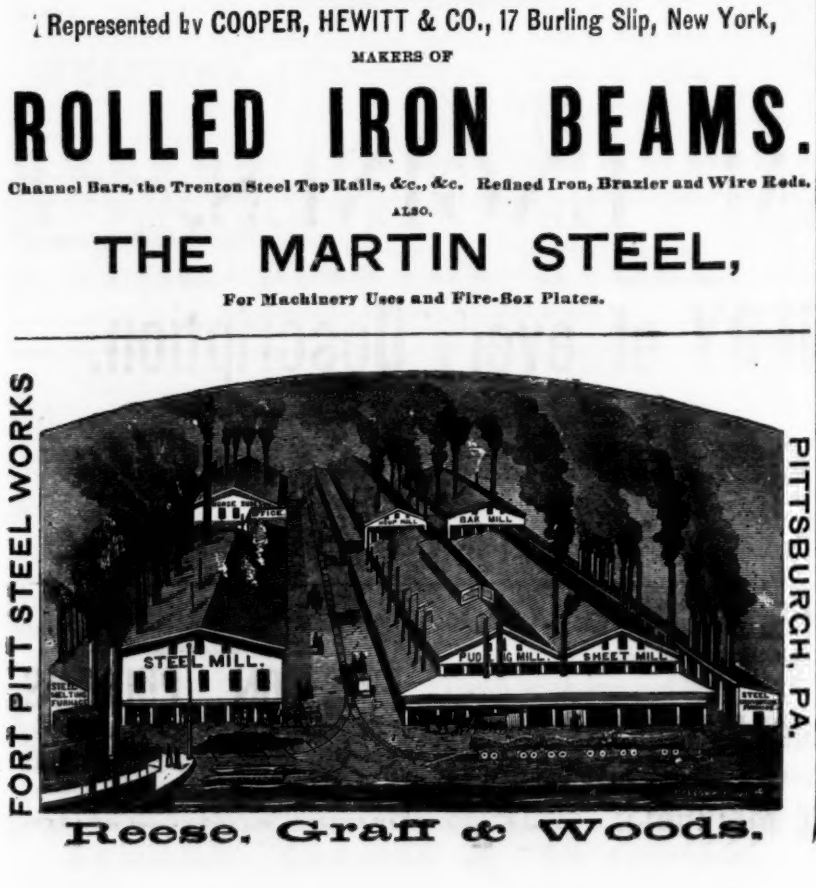
SAFETY-FUSE at wholesale.



CHICAGO.

(Reported by Markley, Alling & Co.)

Agricultural Implements.—
Scythes—Dunn Edge Tool Co....dis 25 %
Hay and Manure Forks—Otsego extra C. S....dis 25 %
Hoes and Garden Rakes—Jackson and Otsego...dis 25 %
Scythe Stones....dis 25 %
Scythe and Bush Snathes....dis 20 %
Harvest Rakes and Barley Forks....dis 20 %
Revolving Horse Rakes....dis 20 %
Handles—Fork and Shovel....dis 20 %
Cradles—Nithington, Cooley & Co....dis 20 %
" —Genuine Morgan....₩ doz net $36 00

Augers and Bits.—
Ives' extra C. S....dis 30 % | Snell's....dis 10 %
Jennings'....dis 5 % | " Car Bits....dis 10 %
Cook's....dis 30 %

Axes.—Amoskeag Yankee....₩ doz $13 50
Amoskeag Crescent.... " 14 00
Hunt's Yankee.... " 14 00
Kennebeck Yankee.... " 12 00
Lippincott ".... " 13 00
" Crown.... " 14 00
" Beveled.... " 14 50
Jefford's Silver Steel.... " 13 00
Red Warrior, Beveled.... " 14 00
Kennebeck, Handled.... " 15 00
Boy's, Handled.... " 12 60

Bolts.—Carriage and Tire....dis 70&12½ %
Cast Barrel and Shutter....dis 20&10 %
Wrought Iron Barrel....add 10 %
" " Square....net list

Butts.—Cast Fast Joint, Narrow....dis 20 %
Cast Fast Joint, Broad....dis 20 %
" Loose Joint....dis 45 %
" " Pin, Reversible....dis 40 %
" " Japanned....dis 35 %
" " Silver Tipped....dis 35 %
Wrought Narrow, Fast Joint....dis 30 %
" Broad " "....dis 30 %
" " Loose "....dis 30 %
" Loose Pin....dis 30 %
" Table....dis 20 %
" Brass....dis 10 %
Garretson's Blind Butts, Wood....doz sets $1 75
" " Brick....doz sets 2 75
Parker's " Wood....doz sets 1 85
" " Brick....doz sets 2 75

Casters.—Iron Plate....dis 25 %
Brass Wheel Plate....dis 25 %
Porcelain Wheel Plate....dis 25 %
" " Bed....dis 25 %
Iron Wheel Bed....dis 25 %

Chisels.—Butcher's Tanged Firmer....dis 30 %
" Long Paring....dis 30 %
Witherby Socket Framing....dis 50&20 %
" " Firmer....dis 50&20 %
" " Corner....dis 50&20 %
" " Slicks....dis 50&20 %

Coffee Mills.

Box 4 Iron	$3 75	Box 85 Cast Steel	$13 00
" 103 "	5 25	Side 50	4 75
" 102 "	6 25	" 60	5 75
" 107 Britannia	7 50	" 70	7 25
" 106 "	8 50	" 90	18 00
" 25 Union	11 00	" 15 Union	7 00
" 85 "	18 00	" 20 "	8 00
" 75 Cast Steel	11 00		

Cutlery.—American Table....dis 20 %
" Pocket....dis 25 %

Door Springs.—Torry....₩ doz $6 00
Rubber.... " 4 00
Boon's.... " 5 00

Drawing Knives.—Witherby Tool Co....dis 50&20 %
Ohio Tool Co....net list

Files.—Butcher's....$7 00 £
Nicholson's....$5 00 @ $5 50 £

Hammers.—
Maydole's....net list | Yerks & Plumb....net list | Cheney....net list

Handles.
Extra Axe...₩ doz. $3 00 | Coal Pick, No. 1..₩ doz $2 00
No. 1 Axe.... " 2 25 | Sledge, No. 1.... " 2 00
No. 2 Axe.... " 2 00 | Hatchet.... " 65
R.R. Pick, No. 1 " 2 00 | Hammer, A. E.. " 65

Hatchets.—

	1	2	3
Amoskeag Shingling	$7 25	$8 00	$8 75
" Claw	7 75	8 50	9 22
" Lath	7 50	8 25	
" " Solid Steel	12 00		

Hinges.—Strap and T....dis 35&5 %
Screw Hook and Strap, 8 to 12 in....net, 9c. ₩ ℔
" " 14 to 24 in....net, 7½c. ₩ ℔
Hook and Eye Hinges....net 12c. @ 16c. ₩ ℔
Gate, No. 25, State....₩ doz $3 50
" No. 3, In and Out.... " 3 50
" Blinn's Pat.... " 7 50

Horse Nails.—Northwestern, 8d....24c
Ausable, 8d....24c
Globe, 8d....26c

Kettles.—Brass....50c | Enameled....dis 15 %
Locks and Knobs.— | EagleLock Co....dis 15 %
Norwalk Lock Co. dis 35 % | Am. Pad Locks....dis 25 %
Branford " . dis 35 % | Conti'al Lock Co....dis 10 %
Meat Cutters.— | Woodruff Patent...net list
Haven's Patent...net list | Stowe's Sausage
Hale's " ...dis 10 % | Stuffers....net list
Molasses Gates.— | Enterprise Patent...dis 5 %
Stebbin's Patent..dis 50 %

Nails.—10d to 60d....per keg $4 50 @ 4 62½

Oil Stones.—Washita No. 1....net 30c ₩ ℔
Washita Slips....net 60c "
Hindostan No. 1....net 9c "
" Axe....net 10c "
" Slips....net 15c "

Picks and Mattocks.—Picks, Railroad,
Axe Finish....₩ doz $12 00
Picks, Coal, Axe Finish.... " 10 00
Mattocks, L. C., Axe Finish.... " 15 00
" S. C., ".... " 14 50
Grub Hoes, Axe Finish, No. 2.... " 11 00

Planes.—Ohio Tool Co., Bench....dis 20 %
Sciota....dis 25 %
A. Howland & Co., Bench....dis 20 %
" Fancy....dis 30 %
Bailey Patent Iron....dis 15 %
Plane Irons, Butcher's....dis 30 %

Rivets.—Iron..dis 10 @ 15 % | Copper, No. 7. net, ₩ ℔, 58c
Tinned....dis 10 @ 15 %

Rules.—Stanley Rule and Level Co....dis 50&10 %
Hubbard & Curtiss Mfg. Co....dis 50&10 %

Sad Irons.—Best A No. 1....₩ ℔, 4¼ @ 4½c
" Copper Face Star...₩ ℔, 4¾ @ 4½c

Sandpaper.
Wiggin& Stevens, No. 0 to 1½....₩ ream, net, $4 50
" No. 2 to 3.... " 5 00

Sash Locks.—Champion....₩ gross, net, $12 00
Hopkins & Dickinson....dis 10 %
Judd's Patent....dis 10 %
Corbin's Patent....dis 10 %
Clark's Patent....dis 20 %

Saws.—H. Disston & Sons....dis 10 %
Champion X Cut....₩ foot, net, 60c
M. A. & Co. X Cut.... " " 50c
Lightning Cut.... " " 66c

Screws.—American Screw Co.—Iron....dis 45 %
American Screw Co.—Brass....dis 50 %
" " —Blued Rd. Head....dis 25 %

Shovels and Spades.
Ames' Black Shovels....₩ doz $14 50
" Polished ".... " 15 50
" Patent ".... " 18 00
Alling " ".... " 17 50
" " " Molders'.... " 18 00
Crane's Black ".... " 12 00
" Polished ".... " 13 00
Smith's " " B. S. L. H. Rd. Pt.... " 13 50
" " " B. S. D. H. Rd. Pt.... " 14 00
Ames' Black Spades.... " 16 00
" Polished ".... " 17 00
" Patent ".... " 17 50
Alling " ".... " 15 50
Crane's Black ".... " 12 50
" Polish'd ".... " 13 50

Scoops.—Alling Steel Polished, No. 3....₩ doz, $13 50
Alling Steeled Polished, No. 3.... " 14 00
" " No. 4.... " 14 50
" " No. 5.... " 15 50
" " No. 6.... " 16 50
" " No. 7.... " 17 50
" " No. 8.... " 18 50
" " No. 10.... " 21 50
Crane's Polished, No. 5.... " 13 50
" No. 6.... " 14 50
" No. 7.... " 15 50
" No. 8.... " 16 50
Crane's Black Coal, No. 4.... " 17 50
" " No. 5.... " 18 00
Preston, Black Scoops No. 1.... " 12 00
" " No. 2.... " 12 50
" " No. 3.... " 13 00
" Half Pol. Scoops No. 1.... " 12 50
" " " No. 2.... " 13 50
" " " No. 3.... " 14 50
Lippincott, Half Pol. No. 2.... " 15 00
" " No. 3.... " 16 00

Wrenches.—Taft's....dis 60 %
Coe's Imitation....dis 50 %
Coe's Genuine....dis 30 %

Wringers.—Novelty Clothes Wringer....₩ doz $72 00
Universal Clothes Wringer.... " 72 00

Chicago Metal Market.

(Reported by Cragin Bros. & Co., 141, 143, and 145 Lake St.)

Tin Plate.—
IC, 10x14, Coke....$12 00 | IXX, 14x20, Charcoal.. 20 00
IC, 10x14, Charcoal. 13 00 | IXXX, 14x20, " ... 23 00
IX, 10x14, " . 16 00 | IXXXX, 14x20, " ... 26 00
IC, 12x12, " . 13 50 | IX, 14x14, " ... 27 50
IX, 12x12, " . 16 50 | DC, 100 Plate, " ... 13 00
IC, 14x20, " . 14 00 | DX, " ... 16 00
IX, 14x20, " . 17 00 | DXX, " ... 19 00
| DXXX, " ... 22 00
IC, 14x20, Coke Roofing....
IC, 10x20 Coke, for Gutters.... 20 00
IC, 14x20, Charcoal Roofing.... 12 50
IX, 14x20 ".... 15 00
IC, 20x28, ... 26 00
IX, 20x28, ... 32 00

Pig Tin.— | Small, 30 ℔....41c
Large, 60 ℔....40c | Bar Tin....42c

Zinc.—
In casks 1000 ℔s....11 c | In sheets....11½c
" 500 " ....11½c | Slab....9c

Copper.—Copper Bottoms....40c
Sheathing Copper....38c
Planished Copper, 14x48....46c
Size, 14x52, 14x56, 14x60 } Planished Copper....48c
Nos. 7 8 9 }

Braziers' Sheets, 30x60.—6 to 8 lbs....46 c | 15 to 100 lbs....40c
10 and 12 lbs....48c | Ingot Copper....
| Bolt....45c

Solder.—Extra Fine, C. B. & Co.'s Brand..25c | Ordinary, No. 21c
| Plumbers' Solder....23c
Fine, No. 1....23c | Braz'rs' or Spelt'r Solder 35c

Antimony....20c
Babbit Metal....15c @ 25c.
Galvanized Iron Conductor Pipe....₩ ℔ 10c

Sheet Iron.— Common. Smooth. Charcoal.
No. 14 to 24.... 6 c 7½c 8¾c
25 & 26.... 6¼c 7½c 9 c
27.... 6½c 7¾c 9½c
Add ¼c ₩ ℔ for 30 in. wide.

Galvanized Iron....dis 25 %
No. 16 to 20....15c | No. 27....18c
21 to 24....16c | 28....20c
25 & 26....17c |

Russia Iron.— | No. 13.... c
Perfect, 8, 9 and 10....23c | In Sheets, 1c. higher.
" 11 and 12....22c |

American Russia.— | B....15c
A....15c | In sheets, 1c higher.

Lead.— | Lead Pipe, in full coils 10½c
Pig....8½c | Lead Pipe, when cut..
Bar....10c | Sheet Lead....10½c

BOSTON.

(Reported by Macomber, Bigelow & Dowse, 42 to 48 Batterymarch St.)

Axes.—Forester's Favorite, Bronzed....$13 00
Blue Jackets, Blue.... 12 50
Chopper's Pride, Bronzed.... 11 00
Red Cross, Red.... 10 50
Red Cross, Handled.... 13 50
Boy's Handled Blue Jackets.... 12 00

Bells.—Hand....dis 60 %
Sleigh, fancy body straps, patent leather, cloth bound, W. M., 30 bells, No. 1....per strap $1 70
Sleigh, patent leather, cloth bound, W. M., 36 bells, No. 1....per strap, $1 80
Sleigh, patent leather, leather bound, ex. tinned, 30 bells, No. 1....per strap $2 38
Sleigh, patent leather, leather bound, ex. tinned, 36 bells, No. 1....per strap $2 50
Sleigh, patent leather, leather bound, silver plated, 30 bells, No. 1....per strap $3 38
Sleigh, patent leather, leather bound, silver plated, 36 bells, No. 1....per strap $3 50
Sleigh, shaft straps, W. M., House, 6 bells, No. 1, ...per pair 75c

Bolts.—Carriage, Phila., "Girard Works"....dis 50 %
Borers.—Angle, Backus'....dis 30 %
Boring Machines.—Angle....each $5 25
Common, Snell's quality....each 4 00
Breast Drills.—Miller's Falls, $30 per doz....dis 25 %
Braces.—Barber's....dis 40 %
Backus'....dis 45 %
Spofford's....dis 40 %

Butts.—Union Drilled Loose Joint....dis 45 %
" " Wire Fast Joint....dis 35 %
" " Acorn Loose Joint....dis 40 %
Alden's Drilled Plain, Reversible....dis 35 %
" " Acorn, "....dis 25&10 %
Wrought Table Butts and Back Flaps....dis 25 %
Wrought Narrow Butts....dis 30 %

Carriage Jacks.—Young America....₩ doz $21 00
Chisels.—
Socket Framing M., B. & D's, warranted...dis 60&10 %
Cordage.—Manila....₩ ℔, 18c
American Tarred Hemp Lath Yarn....₩ ℔, 10c

Cow Ties.—
No. 30, open ring, 3 ft., No. 6, with toggle..₩ doz $3 37
No. 35 " 3 ft., No. 6 " snap....₩ doz 3 62
No. 40 " 3½ ft., No. 5 " toggle..₩ doz 3 75
No. 45 " 3½ ft., No. 5 " snap....₩ doz 4 00
No. 50 " 4 ft., No. 4 " toggle..₩ doz 4 25
No. 55 " 4 ft., No. 4 " snap....₩ doz 4 50
No. 60 " 4½ ft., No. 3 " toggle..₩ doz 4 50
No. 65 " 4½ ft., No. 3 " snap....₩ doz 5 00

Crow Bars.—Iron, Steel Points....₩ ℔, 6½c
Door Springs.—Stimson's Patent.—
No. 7, Light inside doors, $12·00....dis 25 %
No. 8, " outside " $18·00....dis 25 %
Torrey's....$4·00

Files.—Earl Smith & Co.'s English....$5 to £ gold
American....$5 to £ currency, less 10 %
Nicholson....$5 to £ currency, less 7½ %

Funnel Irons.—$2·50 $2·50 $2·50 $3·25 per doz
5, 5½, 6, 7 inch
Deep Flange, $3·50 $3·75 $4·00 per doz
5, 5½, 6 inch

Gauges.—Star Tool Co....dis 33⅓ %
Hammers.—Maydole....dis 5 %
M., B. & D., solid cast steel, adze eye, No. 1, $10; 1½, $9·75
" " " " " bell face, No. 1, $11; 1½, $9·75.

Hangers & Rollers.—Novelty....dis 30 %
Hatchets.—Underhill Edge Tool Co....dis 10 %
Underhill pattern, solid, C. S. lathing....$9 50
Hinges.—Strap and T, Stanley Works....dis 30&7½ %
Plate, Loose, and Fast Joint....₩ ℔, 8c
Wrought Screw Hook....₩ ℔ 8c

Locks.—P. & F. Corbin....dis 40 %
No. 408, Iron Face and Bolts, Mortise, 3½ inch, per doz net....$1 88
No. 1000, reversible rim knob....$2 25

Mattocks.—K. P. & Co., axe finish, long cutter..$13 75
Short cutter.... 13 50
Meat Cutters.—"Miles'"....dis 10 %
No. 1, $22; No. 2, $30; No. 3, $40 per doz.
American, $6 each....dis 25 %
Metal.—Babbitt, No. 1, 35c; 2, 25c; 3, 16c; 4, 15c ₩ ℔
Nails.—10d and larger....$4 75
Paper.—Finest Quality Manila....₩ ℔ 11c
Parers.—Reading, New Pattern....per doz $8 00
Turn Table....per doz 8 50
Picks.—K. P. & Co., Polished Points—
5 to 6....per doz $10 00; 6 to 7, $10 50
Pulleys.—Clark & Co.'s Axle, 1½ in.—
....per doz 37c.; 2 in., 42c
No. 115, Axle, 1½ in....per doz 37c
Plated Ware.—Rogers Bros....new list dis 30 %
Pocket Knives.—Conn. Cutlery Co....new net list
Rivets.—Black....dis 25 %
Carriage, oval head, Nos. 3, 4, 5, 6, 7, 8.
13 13 14 14 15 16c ₩ ℔ net

Sad Irons.—Reading....₩ ℔ 4½
Saws.—Disston's....dis 12½ %
Lightning X cut, Boynton's....per foot 67c
" Saw Blades, 32 inch....per doz $7 00
" Framed Saws....per doz $9 00
Common " "....per doz 6 00
Disston " "....per doz 9 00
One man X cut.—Lightning....$2 75 each
Disston's $3·00 each....dis 12½ %
W. M. & C., "Handy" Framed Saws....₩ doz $13 50
Saw Clamps.—Reading....$11·25
Screws.—American Screw Co....dis 47½ %
Shovels.—O. Ames....new list dis 10 %
M. B. & D....dis 10&5 %
Snow, malleable iron tip, D handle....[illegible]
" " " plain....5·50
Sifters, Coal.—McMasters....$12·00
Sinks.—Cast Iron, 2, 2½, 3, 3½, 4, 4½ feet.
$1·37 $1·62 $2·25 $2·75 $3·75 $4·75 each.
Tools.—Aiken's Pattern, 20 in set; Miller's Falls, $12·00 per doz....dis 15 %
Traps.—Oneida....dis 20 %
Blake's....dis 20&5 %
Vises.—K. P. & Co.'s Solid Box, Blacksmith...₩ ℔ 15½c
Parker's Parallel....dis 5 %
Backus....dis 25 %
"Howards," Parallel....dis 10 %
Weights.—Window Weights....₩ ℔ 2½c
Wrenches.—Coe's Genuine Wrenches....dis 40 %
Wringers.—
Novelty and Universal } Tub No. 2 } less than 5 doz..₩ doz $72 00
5 doz..₩ doz 69 00
10 doz..₩ doz 67 00
Monitor, Double Cogs....per doz 66·00
Novelty Bench, No. 4, } less than 5 doz..₩ doz 108 00
5 doz..₩ doz 104 00
10 doz..₩ doz 101 00
Zinc.—Sheet....₩ ℔ 10½c

Boston Metal Market.

(Corrected by Fuller, Dana & Fitz.)

Tin Plates.— ₩ box | I. C. Coke.... @ $12 00
I. C. Charcoal.. @ $13 50 | " Terne....11 50 @ 13 00
Pig Tin.— ₩ ℔ | Straits, gold.... 32c
Banca, gold.... 37c | English ".... 32c
Copper.— ₩ ℔ | Braziers.... 40c
Sheathing.... 38c | Ingot.... 28c
" Yellow.... c | Old.... 26c
Bolt.... 40c |
Lead.— ₩ ℔ | Sheet and Pipe.... 9·45c
Spanish Pig, gold.... 6½c | Old.... 6½c
Spelter. ₩ ℔ | American, gold.... 7c
Silesian, gold.... 8c |

Zinc.—Sheet....₩ ℔ 10½c
Iron.—Sheet Iron, Russia, gold....₩ ℔ 18c
Sheet Iron, English.... " 7c
" " American.... " 7½c
" " Galvanized.... " 11c @ 13c
Swedes Bar Iron, Flat, gold....₩ ton, $145 00 @ $155 00
" Shoe Shapes, gold.... 155 00 @
Norway Bar Iron, Flats, gold.... 145 00 @ 152 00
" Shapes, gold.... 155 00 @
" Round, 2 in. to ⅝ in., gold.... 147 50 @ 152 50
" " 11-16 to ⅜ in. ".... 162 50 @
" " 5-16 to ¼ in. ".... 165 00 @
" Nail Rods, Rolled ".... 127 50 @
" " U. B. ".... 172 50 @
" " Benzon ".... 167 50 @
" " Vasa ".... 160 00 @
" " N T W ".... 160 00 @
English Refined Bar Iron.... 87 50 @
Scotch Pig Iron.... [illegible] @ 45 00
American ".... [illegible] @ 48 00
Wrought Scrap Iron.... 45 00 @

Steel.— ₩ ℔ | German.... 11c
Eng. Tool, gold 18c | Spring.... 9c
" Mach. " 10c | Tire.... 8c
American Tool 16c | Sleigh Shoe.... 6½c
" Mach 11c | Toe Calk.... 8½c
Bessemer....8½c @ 9½c

ST. LOUIS.

Corrected weekly by Semple, Birge & Co.

Anvils.—Armitage....₩ ℔, gold, 16c
Peter Wright's.... " 14½c
Wilkinson's.... " 12½c
Apple Parers.—Conqueror....₩ doz, $9 00
Lightning.... " 9 00
Turn Table.... " 9 00
Augers and Bits.—Cook's....dis 25 %
Ives'....dis 20 %
Jennings'....dis 5 %
Snell's....dis 12½ %
Axes.—Hunt's....₩ doz $14 50 @ 15 50
Lippincott's.... " 14 00 @ 15 00
Lippincott's Pioneer.... " 14 50 @ 15 50
Simmons'.... " 13 50 @ 14 50
Axles.—Kritch & Crane Mfg. Co.'s—
Patent Taper Axles....dis 10 %
Swelled Taper Axles....dis 10 %
Concord Axles....dis 10 %
Red Jacket Axles....dis 10 %
Common Axles, 1½ inch and upward....₩ ℔, 8½c
" " less than 1½ inch.... " 9½c
Bells.—Troy, Church....₩ ℔, 30c
Light Brass, Hand....dis 50 %
Moore's, Cow....dis 10 %
Bolts.—Arms, Bell & Co.'s Machine....dis 10 %
Arms, Bell & Co.'s Carriage and Tire..new list dis 70 %
Norway Iron Carriage and Tire....dis 40 %
Cast Iron Barrel, Shutter, &c....dis 25 %
Cast Butt Hinges.—Narrow Fast Joint....dis 25 %
Broad Fast Joint....dis 40 %
" Loose "....dis 50 %
Reversible....dis 45 %
" Japanned and Silver Tipped....dis 40 %
Loose Joint "Acorn" " "....dis 40 %
Excelsior Reversible Blind....dis 30&10 %
Lull & Porter's Blind....dis 4 %
Wrought Butts.—Narrow....dis 20 %
Reversible....dis 25 %
Broad....dis 25 %
Table Hinges....net list
Back Flaps....net list
Inside Blind Hinges....net list
Casters.—Porcel'n Wheel Bed or Plate..rev. list dis 15 %
Iron or Brass Wheel Bed or Plate....
Chain.—Eng. Coil..3-16 ¼ 5-16 ⅜ 7-16 ½ in.
14 11½ 10¾ 10 9½ 9c gold
Trace....6½-10-2 70c "
7-10-2 75c "
German Coil and Halter....new list add 15 % "
American Coil—Short Link.
Size, inches.... ¼ 7-16 ½ 9-16 ⅝
Price cents ₩ ℔.... 12½ 12½ 10½ 10 9½ net
Size, inches....11-16 ¾ 13-16 ⅞ 15-16
Price, cents ₩ ℔.... 9½ 8¾ 8¾ 8¾ 8¾ net
Size, inches.... 1 1 1-16 1⅛ 1 3-16 1¼
Price, cents, ₩ ℔.... 8½ 8½ 8 7¾ 7¾ net
All larger sizes same price as 1½ in. Stud chain 1c less than same size close link.
Chisels.—Socket, Firmer or Framing....dis 55 %
Clothes Wringers.—Colby's....₩ doz $66 00
Novelty.... " 72 00
Universal.... " 72 00
Monitor.... " 72 00
Coffee Mills.—Parker's....net list
P. S. W. & Co.'s....net
Corn Knives.—Dunn Edge Tool Co.'s Clip..₩ doz $6 75
Disston's.... " 6 00
Crow Bars.—Steel Pointed....₩ ℔ 8 @ 10c
Solid Cast Steel.... " 20c
Cutlery.—J. Russell & Co.'s....
Lamson, Goodnow & Co.'s.... } new list, dis 20 %
Landers, Frary & Clark's....
Files and Rasps.—
Nicholson's Mill Files....$5 50 to the £, currency
Nicholson's Other Files.... 5 00 to the £, currency
Butcher's Files.... 7 00 to the £, currency
Heller's & Bros. Horse Rasps... 5 25 to the £, currency
Forks and Hoes.—
Auburn Mfg. Co.'s Hay and Manure Forks....dis 25 %
" " Handled Hoes....dis 25 %
" " Planter Eye Hoes....add 20 %
Winsted's Planter Eye Hoes....add 20 %
Hammers.—Yerkes & Plumb....new list net
Masons' Hammers....₩ ℔ 20c
Smith Hand Hammers.... " 22c
Handles.—Axe....Extra. No. 1. No. 2. No. 3.
$2·75 $2·25 $1·75 $1·00
Pick....Extra. No. 1. No. 1½. No. 2.
$2·50 $2·00 $1·75 $1·25
Smith & Montross Fork, Hoe and Rake....dis 10 %
" " Broom and Mop....$12 @ $18 ₩ M.
Harrow Teeth.—1 inch iron....₩ ℔ 5½c
⅞ and ¾ inch iron.... " 5¾c
⅝ inch iron.... " 5¾c
Barbed or Headed....½c extra
Hatchets.—Hunt's....net list
Simmons'....dis 10 %
Hay Knives.—Lightning....₩ doz $22 00
Dunn Edge Tool Co.'s....₩ doz $14 50—dis 15 %
Fisher's.... " 16 50—dis 10 %
Hinges.—Strap and T—St. Louis make....dis 25 %
Horse Nails.—Eureka....23c rates
Ausable....22c "
Northwestern....22c "
Eagle....19c "
National Patent Pointed....21c "
" Extra Finished....22c "
Horse Shoes.—R. I. (Perkin's pat.)....₩ keg $6 75
Burden's.... " 6 75
Mule Shoes....$1 00 extra
Rhode Island Trotting Shoes.... 2 50 "
Locks and Latches.—
Jones & Nimick's....revised list dis 40 %
Moorhead, Adams & Co....dis 40 %
Norwalk Lock Co.'s revised list....dis 35 %
Mattocks and Grub Hoes.—
Klein, Logan & Co.'s Mattocks....₩ doz. $15 00 @ 16 00
" Grub Hoes, Oval Eye....₩ doz. 12 00 @ 13 00
Nails.—Wheeling....$4 60 rates.
Orders for 100 kegs 10c ₩ keg less.
Picks.—Klein, Logan & Co.'s R. R. and Clay ₩ doz.$12 00
Klein, Logan & Co.'s Coal.... " 9 75
" " Poll.... " 12 00
" " Stone.... " 16 50
" " Tamping.... " 19 00
Planes.—Ohio Tool Co.'s....dis 15 %
Eastern....dis 20 %
Post Hole Augers.—Clark's Patent—
No. 1, ₩ doz. $27; No. 2, $30; No. 3, $32....dis 20 %
Barton's Patent....₩ doz $25—dis 20 %
Vaughn's ".... " 25—dis 10 %
Sad Irons.—Monitor Brand, Silver Polished....₩ ℔ 5c
Sash Weights.—Standard Solid Eyes....₩ ℔ 3½c
Saws.—Disston's....dis 10 %
Spear & Jackson's....$5 00 to £ gold
Hubbard, Lippincott, B. & Co.'s....dis 10 %
Branch, Crooks & Co.'s....dis 10 %
Livingston's Patent Buck....new list dis 25 %
Screws.—American Screw Co.'s revised list....dis 45 %
$2000 worth in 6 months....2½ % extra
Scythes.—Blood's C. S. & G. S....net list
Dunn Edge Tool Co.'s, Factory List....dis 15 %
Paris Furnace Co.'s....dis 25 %
Waldron's English....$10 00 to £
Scythe Stones.—No. 1 Ind'n Pond ₩ gr's, $7 00 }
Extra Indian Pond.... " 7 50 } dis 25 %
Premium.... " 9 50 }
Diamond Grit.... " 13 50 }
Shovels, Spades and Scoops.—
Ames'....revised list dis 5 %
Lippincott's....new list dis 10 %
Rowland's, Maxwell....revised list dis 10 %
Sledges.—Smith's Stone or Coal Sledges—
Steel Face Polished....₩ ℔, 17c
Solid Cast Steel.... " 35c
Striking Sledges....₩ ℔ extra, 1c
Snaths and Cradles....dis 20 %
Springs.—Cleveland Spring Co.'s—
Carriage and Express....dis 5 %
Blue Seat Springs....new list dis 10 %
Tacks.—Norway Tack Co.'s ½ weight....dis 67½ %
Brads....dis [illegible] %
Traps.—Newhouse Patent....dis 15 %
Reichard's Animal, Wood Bottom....₩ doz $10 00
" " Metal Bottom.... " 12 00
Vises.—Solid Box....₩ ℔ 16c
Wilson Mfg. Co.'s....dis 15 %
Wrenches.—Coes' Genuine....dis 30 %
Coes' Pattern....dis 40 %
Taft's....dis 30 %

St. Louis Metal Market.

(Corrected Weekly by Messrs. R. Sellew & Co.)

Tin Plate.
IC, 10x14, Charcoal...$12 00 | IC, continuous,
IX, 10x14, " ... 15 00 | 20 in. x 200 ft....
IC, 12x12, " ... 12 50 | IX, continuous,
IX, 12x12, " ... 15 50 | 20 in. x 200 ft....
IC, 14x20, " ... 13 00 | IC, 10x14, best Coke..$11 00
IX, 14x20, " ... 16 00 | IC, 10x14, good " .. 10 50
IC, 14x20, Terne.... 11 50 | IC, 10x20.... 13 50
IX, 14x20, " .... 14 50 | IC, 14x20.... 11 00
IC, 20x28, " .... 25 00 | IC, 14x20, Coke Lead. 10 0
IX 20x28, Terne.... 30 00 |

Block Tin.
Large Pigs....40c | Bars....4
Small "....41c |

Sheet Zinc.
Casks....₩ ℔ 10½c | Sheet....₩ ℔ 1

Solder.
No. 1, Refined, in bars or plate....23c
No. 2, " " "....21c
Pig Lead....8c

Sheet Copper.—18 to 100 lbs. Sheets 30x60....40c
14 to 16 lbs., Sheets 30x60....40c
10 to 12 lbs., " and 20x72....43c
6 to 9 lbs., "....46c
Tinned, 14 and 16 oz. 14x48....36c
Planished, 14 and 16 oz. 14x48....46c
" No. 7, 8 and 9....48c
Copper Bottoms....37c

Sheet Iron.— Com'n Sm'th. Char'l. Jun.
No. 16 to 20.... 6c 7c 8½c
No. 22 to 24.... 6c 7c 8½c
No. 26.... 6½c 7½c 8½c
No. 27.... 6½c 7½c 8½c
Galvanized Iron....dis 25 %
Iron Rivets....dis 20 %
Iron Wire....dis 30 %
Coppered Market Wire....dis 20 %
Copper Rivets and Bars....dis 10 %
Russia Iron.—Nos. 9, 10, 11 and 12, ₩ ℔....[illegible]
No. 1, stained, ₩ ℔....[illegible]
Imitation Russia, ₩ ℔....[illegible]

Machinery, &c.

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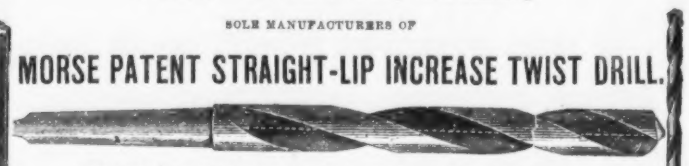
MORSE PATENT STRAIGHT-LIP INCREASE TWIST DRILL.



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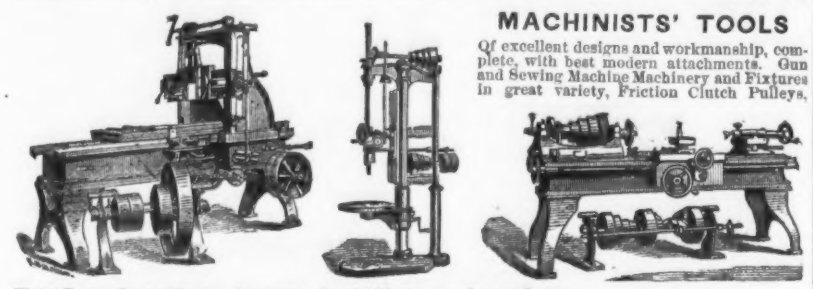

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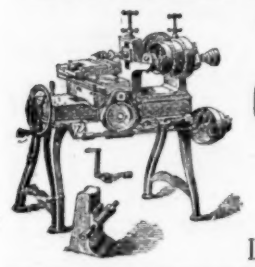

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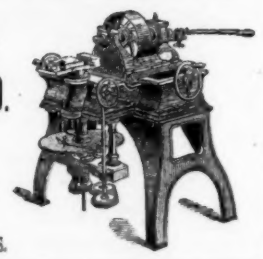

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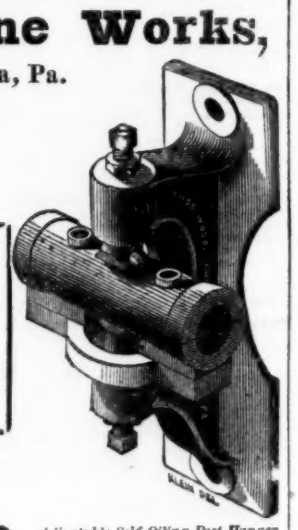

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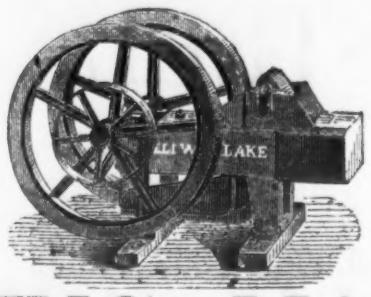

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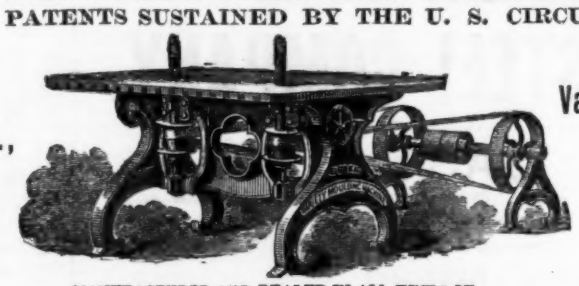

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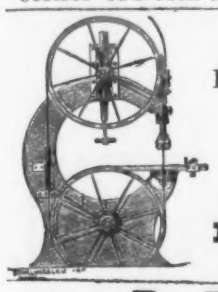

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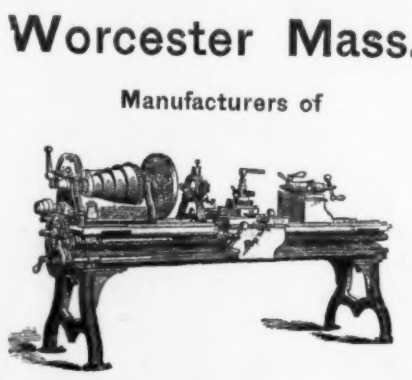

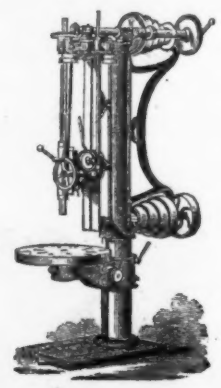

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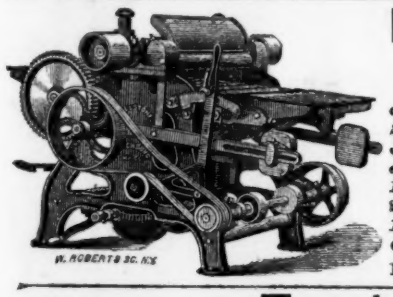

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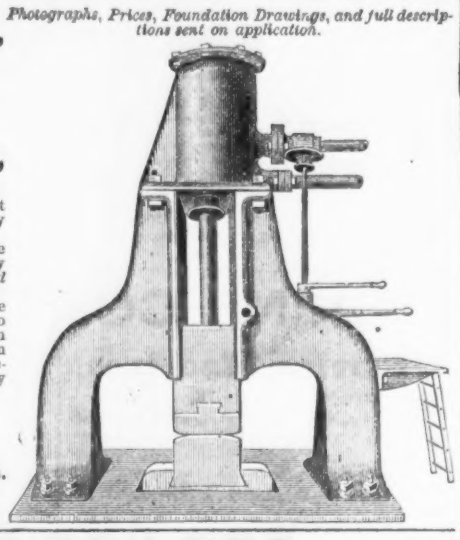

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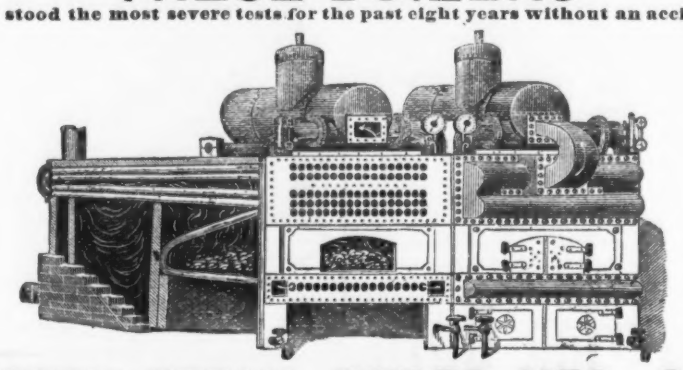

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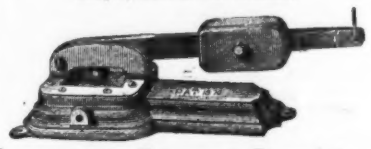

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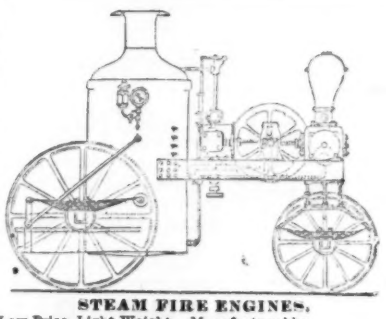

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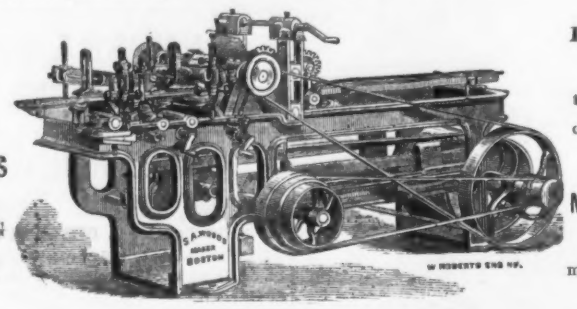

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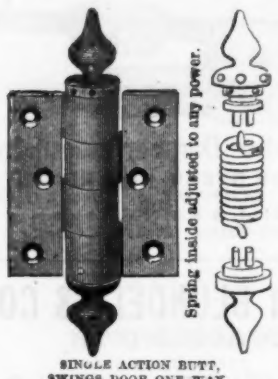

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Very Desirable

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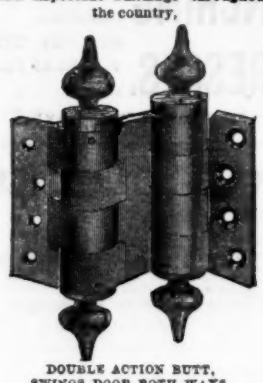

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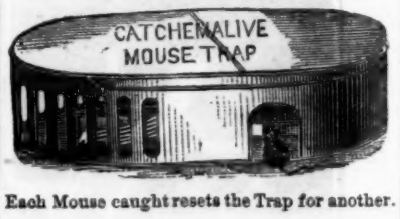

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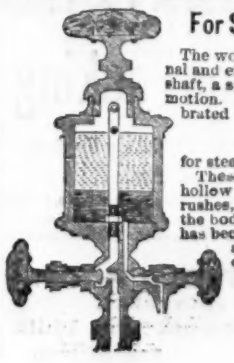

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